

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

D_M3

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

C Number: C60311
Lock Date: 12/03/2008
Cage Range: ALL
Date Range: ALL
Reasons For Removal: ALL
Removal Date Range: ALL
Treatment Groups: Include ALL
Study Gender: Both
TDMSE Version: 2.1.0

TDMS No. 60311 - 06

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Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 1 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 729 HISTO: 54787

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Brain
* Epididymis * Esophagus * Eye * Gallbladder
* Harderian Gland * Heart * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum
* Islets, Pancreatic * Larynx * Lung * Lymph Node, Bronchial
* Lymph Node, Mandibular * Lymph Node, Mesenteric * Nose * Pancreas
* Parathyroid Gland * Pituitary Gland * Preputial Gland * Prostate
* Salivary Glands * Seminal Vesicle * Skin * Spleen
* Stomach, Forestomach * Stomach, Glandular * Testes * Thymus
* Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Lymph Node, Mediastinal * Mammary Gland

OBSERVATIONS

- * Bone Marrow Hemangiosarcoma
* Kidney Nephropathy Minimal
* Liver Hepatocellular Adenoma TGLs = 1-5] Hepatocellular Adenoma Multiple
Mesentery Fat Necrosis Mild
[Necrosis TGLs = 2-6]

TDMS No. 60311 - 06

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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 3

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 54789

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lung | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | |
|------------------|------------------|---------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Heart | Hemangiosarcoma | |
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	4	TMT:	1	SEX:	Male	DAY ON TEST:	646
		DOSE:	control	DISP:	Natural Death	HISTO:	54790

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|------------------------|----------------------|---------------------------|--------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Heart | * Intestine Large, Colon |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Mediastinal | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mesenteric |

INSUFFICIENT TISSUE

- * Pituitary Gland

OBSERVATIONS

- | | | |
|---|--------------------------|--------------------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Harderian Gland | Lymphoma Malignant | |
| * Kidney | Nephropathy | Mild |
| * Liver | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | |
| | Lymphoma Malignant | |
| [Hepatocellular Adenoma TGLs = 6,8-5+6] | | |
| [Hepatocellular Carcinoma TGLs = 7-12] | | |
| * Lung | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Lymphoma Malignant | |
| [Hepatocellular Carcinoma TGLs = 1,2,3,9-4] | | |
| * Nose | Lymphoma Malignant | |
| * Prostate | Lymphoma Malignant | |
| * Salivary Glands | Lymphoma Malignant | |
| * Spleen | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

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Test Type: CHRONIC

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Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	4	TMT:	1	SEX:	Male	DAY ON TEST:	646
		DOSE:	control	DISP:	Natural Death	HISTO:	54790

ORGAN AND ACCOUNTABLE SITE STATUS

[Lymphoma Malignant TGLs = 5-5]

* Urinary Bladder

Lymphoma Malignant

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	5	TMT:	1	SEX:	Male	DAY ON TEST:	729
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54791

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|-----------------|---------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland | * Thymus |
|-------------------------|-----------------|---------------------|----------|

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- | | | |
|----------|---|--------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Marked |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | |
| | Hepatocellular Carcinoma | Multiple |
| | [Clear Cell Focus TGLs = 4-19] | |
| | [Hepatocellular Adenoma TGLs = 3-6] | |
| | [Hepatocellular Carcinoma TGLs = 1,2,6-17+15+16+21] | |
| * Lung | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Minimal |
| | Hyperplasia | |

* PROTOCOL REQUIRED TISSUE

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 6 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 731 HISTO: 54792

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Larynx
- * Lymph Node, Mediastinal
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Lung
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Nose
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pancreas
- * Prostate
- * Spleen
- * Thymus

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | |
|----------------------|--------------------------|----------|
| * Adrenal Cortex | Hyperplasia | Mild |
| * Islets, Pancreatic | Hyperplasia | Moderate |
| * Kidney | Infarct | Mild |
| | Nephropathy | Mild |
| * Liver | Hepatocellular Adenoma | |
| | Hepatocellular Carcinoma | |
- [Hepatocellular Adenoma TGLs = 1-5]
 [Hepatocellular Carcinoma TGLs = 2-12]

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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	7	TMT:	1	SEX:	Male	DAY ON TEST:	684
		DOSE:	control	DISP:	Moribund Sacrifice	HISTO:	54793

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |

MISSING

- | | | |
|---------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland |
|---------------|--------------------------|-----------------|

OBSERVATIONS

- | | | |
|---------------------------|---|----------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Cyst | Mild |
| | Nephropathy | Minimal |
| | [Cyst TGLs = 8-6] | |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | Multiple |
| | Lymphoma Malignant | |
| | [Hepatocellular Adenoma TGLs = 3,4,11-14+15+16] | |
| | [Hepatocellular Carcinoma TGLs = 1,2-12+6] | |
| | [Lymphoma Malignant TGLs = 5-5] | |
| * Lung | Alveolar/Bronchiolar Adenoma | |
| | Bronchiole | Moderate |
| | Hyperplasia | |
| | Lymphoma Malignant | |
| | [Alveolar/Bronchiolar Adenoma TGLs = 7-4] | |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| Mesentery | Fat | |
| | Necrosis | Mild |
| | [Necrosis TGLs = 10-17] | |
| * Spleen | Lymphoma Malignant | |
| * Testes | Interstitial Cell | Adenoma |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

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P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 7

TMT: 1

DOSE: control

SEX: Male

DISP: Moribund Sacrifice

DAY ON TEST: 684

HISTO: 54793

ORGAN AND ACCOUNTABLE SITE STATUS

[Adenoma TGLs = 9-8]

* Urinary Bladder

Lymphoma Malignant

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 9

TMT: 1

DOSE: control

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 730

HISTO: 54795

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder

- * Adrenal Medulla
- * Epididymis
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Nose
- * Prostate
- * Spleen
- * Thymus

- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Pancreas
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mediastinal
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

MISSING

- * Lymph Node, Bronchial

- * Lymph Node, Mandibular

- * Mammary Gland

- * Parathyroid Gland

OBSERVATIONS

- * Harderian Gland
- * Kidney
- * Liver

Hyperplasia
 Nephropathy
 Clear Cell Focus
 Eosinophilic Focus
 Hepatocellular Adenoma

Moderate
 Minimal

[Clear Cell Focus TGLs = 1-5]
 [Hepatocellular Adenoma TGLs = 2-6]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 10	TMT: 1	SEX: Male	DAY ON TEST: 704
	DOSE: control	DISP: Natural Death	HISTO: 54796

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | |
|------------------|--|--------------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Kidney | Nephropathy | Mild |
| * Liver | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 3-6] | |
| | [Hepatocellular Carcinoma TGLs = 1,2-5+12] | |
| * Testes | Germinal Epith | Degeneration |
| | | Mild |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 11 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 729 HISTO: 54797

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Epididymis * Esophagus * Eye
* Gallbladder * Harderian Gland * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum
* Islets, Pancreatic * Larynx * Lung * Lymph Node, Bronchial
* Lymph Node, Mandibular * Lymph Node, Mediastinal * Lymph Node, Mesenteric * Nose
* Pancreas * Parathyroid Gland * Pituitary Gland * Preputial Gland
* Prostate * Salivary Glands * Seminal Vesicle * Stomach, Forestomach
* Stomach, Glandular * Testes * Thymus * Thyroid Gland
* Trachea * Urinary Bladder

MISSING

- * Mammary Gland

OBSERVATIONS

- * Heart Cardiomyopathy Minimal
* Kidney Nephropathy Minimal
* Liver Basophilic Focus
Hepatocellular Adenoma
[Basophilic Focus TGLs = 4-5]
[Hepatocellular Adenoma TGLs = 5-6]
* Skin Inflammation Chronic Active, Moderate
* Spleen Hematopoietic Cell Proliferation Mild
[Inflammation TGLs = 2,3-12+13]
[Hematopoietic Cell Proliferation TGLs = 1-5]

TDMS No. 60311 - 06

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 12	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54798

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Bone | * Bone Marrow | * Brain | * Epididymis |
| * Esophagus | * Eye | * Gallbladder | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | |
|---------------------------|--|----------|
| * Adrenal Cortex | Lymphoma Malignant | |
| * Adrenal Medulla | Lymphoma Malignant | |
| * Harderian Gland | Lymphoma Malignant | |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Lymphoma Malignant
Nephropathy | Mild |
| * Liver | Clear Cell Focus
Hepatocellular Adenoma
Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 5,6,7,8,9-5+17+18+19] | |
| | [Hepatocellular Carcinoma TGLs = 4-6] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 3-5] | |
| * Stomach, Forestomach | Lymphoma Malignant | |
| * Stomach, Glandular | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 12 TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 54798

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus

Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

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Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 13	TMT: 1	SEX: Male	DAY ON TEST: 730
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54799

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Thymus |
|-------------------------|--------------------------|-----------------|----------|

OBSERVATIONS

- | | | |
|------------------|---|----------------------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | |
| | Mixed Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 3-6] | |
| | [Mixed Cell Focus TGLs = 2-5] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | |
| * Nose | Olfactory Epi | Respiratory, Minimal |
| | Metaplasia | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 14	TMT: 1	SEX: Male	DAY ON TEST: 651
	DOSE: control	DISP: Natural Death	HISTO: 54800

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-------------------|--------------------------|---------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Heart |
| * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Testes | * Thyroid Gland | | |

MISSING

- | | | | |
|-------------------------|-----------------|-------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Pituitary Gland | * Thymus |
|-------------------------|-----------------|-------------------|----------|

AUTO PRECLUDES DIAG.

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Nose | * Seminal Vesicle | * Stomach, Glandular |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------|------------------------|
| * Eye | Cornea | Inflammation | Chronic Active, Marked |
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 4-11] | | |
| * Liver | [Hepatocellular Carcinoma TGLs = 5,8,6,7-12+13+6] | Hepatocellular Carcinoma | Multiple |
| * Lung | [Hepatocellular Carcinoma TGLs = 3-4] | Hepatocellular Carcinoma | Metastatic (Liver) |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 15

TMT: 1

DOSE: control

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 729

HISTO: 54801

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Testes
- * Urinary Bladder

- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Nose
- * Preputial Gland
- * Spleen
- * Thymus

- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Pancreas
- * Prostate
- * Stomach, Forestomach
- * Thyroid Gland

- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Glandular
- * Trachea

MISSING

- * Lymph Node, Bronchial

- * Lymph Node, Mediastinal

- * Mammary Gland

OBSERVATIONS

- * Adrenal Cortex
- * Kidney
- * Liver

Hypertrophy
Nephropathy
Hepatocellular Adenoma

Mild
Minimal

[Hepatocellular Adenoma TGLs = 2-6]

- * Skin
- [Neural Crest Tumor TGLs = 1-12]

Neural Crest Tumor

Tooth

Malformation

Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 17	TMT: 1	SEX: Male	DAY ON TEST: 730
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54803

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Nose | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

INSUFFICIENT TISSUE

- * Pituitary Gland

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------|--------------------------|
| * Eye | Cornea | Inflammation | Chronic Active, Moderate |
| | [Inflammation TGLs = 1-11] | | |
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 2-11] | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-5] | | |
| * Lung | | Hepatocellular Carcinoma | Metastatic (Liver) |
| Lymph Node | Renal | Hemorrhage | Marked |
| | [Hemorrhage TGLs = 4-6] | | |
| * Lymph Node, Mesenteric | | Hemorrhage | Marked |
| | [Hemorrhage TGLs = 5-7] | | |
| * Testes | Germinal Epith | Degeneration | Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 18

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 54804

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pancreas
- * Prostate
- * Spleen
- * Thymus

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Nose
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder

MISSING

- * Lymph Node, Bronchial

- * Mammary Gland

OBSERVATIONS

- * Kidney Nephropathy Mild
- * Lung Alveolar/Bronchiolar Adenoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 19	TMT: 1	SEX: Male	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54805

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|-----------------|---------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland | * Thymus |
|-------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|------------------|--|----------------------------------|--------------------|
| * Adrenal Cortex | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Kidney | | Nephropathy | Moderate |
| * Liver | [Hepatocellular Carcinoma TGLs = 2,3,4,5-13+5] | Hepatocellular Carcinoma | Multiple |
| * Lung | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Spleen | [Hematopoietic Cell Proliferation TGLs = 1-12] | Hematopoietic Cell Proliferation | Moderate |
| * Testes | Germinal Epith | Degeneration | Mild |
| Tooth | | Malformation | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 20	TMT: 1	SEX: Male	DAY ON TEST: 730
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54806

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lung |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|--|--------------------------|----------|
| * Kidney | Nephropathy | Moderate |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | Multiple |
| [Clear Cell Focus TGLs = 5-5] | | |
| [Hepatocellular Adenoma TGLs = 2,4-5+13] | | |
| [Hepatocellular Carcinoma TGLs = 1,3-14+6] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 21	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54807

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | |
|---|--------------------------------|----------|
| * Adrenal Cortex | Hyperplasia | Moderate |
| * Harderian Gland | Adenoma | |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Mild |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Carcinoma | Multiple |
| [Hepatocellular Carcinoma TGLs = 1,2-12+14] | | |
| * Lung | Alveolar/Bronchiolar Adenoma | |
| | Alveolar/Bronchiolar Carcinoma | |
| [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 22	TMT: 1	SEX: Male	DAY ON TEST: 730
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54808

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|--------------------------|----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Liver | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|--|----------------------------------|--------------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Intestine Small, Duodenum
[Carcinoma TGLs = 4-12] | Carcinoma | |
| * Kidney Pelvis | Inflammation | Suppurative, Mild |
| | Nephropathy | Mild |
| Mesentery Fat | Necrosis | Mild |
| [Necrosis TGLs = 1-6] | | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| [Hematopoietic Cell Proliferation TGLs = 3-5] | | |
| * Testes Germinal Epith | Degeneration | Mild |
| * Urinary Bladder Transit Epithe | Hyperplasia | Moderate |
| | Inflammation | Chronic Active, Moderate |
| [Inflammation TGLs = 5-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 23 TMT: 1 DOSE: control

SEX: Male DISP: Natural Death

DAY ON TEST: 682 HISTO: 54809

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Larynx
- * Lymph Node, Mesenteric
- * Prostate
- * Spleen
- * Thymus
- * Adrenal Medulla
- * Epididymis
- * Heart
- * Lymph Node, Bronchial
- * Nose
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland
- * Bone
- * Esophagus
- * Intestine Large, Colon
- * Lymph Node, Mandibular
- * Pancreas
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea
- * Bone Marrow
- * Eye
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pituitary Gland
- * Skin
- * Testes
- * Urinary Bladder

MISSING

- * Mammary Gland
- * Parathyroid Gland
- * Preputial Gland

AUTO PRECLUDES DIAG.

- * Gallbladder
- * Intestine Small, Ileum
- * Intestine Large, Cecum
- * Intestine Small, Jejunum
- * Intestine Large, Rectum
- * Intestine Small, Duodenum

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Hemangiosarcoma Multiple
- Hepatocellular Carcinoma Marked
- Necrosis
- [Hemangiosarcoma TGLs = 1-5]
- [Hepatocellular Carcinoma TGLs = 2,3-5+6]
- * Lung Alveolar/Bronchiolar Carcinoma

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 24	TMT: 1	SEX: Male	DAY ON TEST: 716
	DOSE: control	DISP: Natural Death	HISTO: 54810

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|------------------|-------------------|------------------------|-------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Epididymis | * Esophagus | * Islets, Pancreatic | * Larynx |
| * Nose | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Skin | * Stomach, Forestomach | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Seminal Vesicle | * Stomach, Glandular | |

OBSERVATIONS

- | | | |
|---------------------------|---|----------|
| * Bone Marrow | Histiocytic Sarcoma | |
| * Heart | Mineralization | Minimal |
| | Thrombosis | Mild |
| * Kidney | Histiocytic Sarcoma | |
| | Nephropathy | Minimal |
| * Liver | Hepatocellular Carcinoma | Multiple |
| | Histiocytic Sarcoma | |
| | [Hepatocellular Carcinoma TGLs = 4,5-6+5] | |
| | [Histiocytic Sarcoma TGLs = 7-5+6] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | |
| Lymph Node | Renal | |
| | [Histiocytic Sarcoma TGLs = 6-12] | |
| * Lymph Node, Mandibular | Histiocytic Sarcoma | |
| * Lymph Node, Mediastinal | Histiocytic Sarcoma | |
| * Lymph Node, Mesenteric | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 8-7] | |
| * Salivary Glands | Histiocytic Sarcoma | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	24	TMT:	1	SEX:	Male	DAY ON TEST:	716
		DOSE:	control	DISP:	Natural Death	HISTO:	54810

ORGAN AND ACCOUNTABLE SITE STATUS

* Spleen		Histiocytic Sarcoma
	[Histiocytic Sarcoma TGLs = 3-5]	
* Thymus		Histiocytic Sarcoma

PRIMARY CAUSE OF DEATH - Liver Histiocytic Sarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 25

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 730
HISTO: 54811

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lung | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | |
|---|--------------------------|---------|
| * Epididymis | Granuloma Sperm | Mild |
| * Harderian Gland | Adenoma | |
| [Adenoma TGLs = 1-11] | | |
| * Kidney | Nephropathy | Minimal |
| * Liver | Basophilic Focus | |
| | Hemangiosarcoma | |
| | Hepatocellular Adenoma | |
| | Hepatocellular Carcinoma | |
| [Basophilic Focus TGLs = 6-5] | | |
| [Hemangiosarcoma TGLs = 5-5] | | |
| [Hepatocellular Adenoma TGLs = 3-6] | | |
| [Hepatocellular Carcinoma TGLs = 4-5] | | |
| * Spleen | Hemangiosarcoma | |
| [Hemangiosarcoma TGLs = 2-5] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 26	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54812

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------------|--------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Pituitary Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|--|--|------------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Intestine Small, Duodenum
[Inflammation TGLs = 7-7] | Inflammation | Chronic Active, Marked |
| * Intestine Small, Ileum | Carcinoma | |
| * Kidney | Nephropathy | Mild |
| * Liver
[Hepatocellular Carcinoma TGLs = 3,4,5,6-5+12+6+13] | Hepatocellular Adenoma
Hepatocellular Carcinoma | Multiple |
| * Lung
[Hepatocellular Carcinoma TGLs = 2-4] | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Preputial Gland
[Ectasia TGLs = 1-8] | Ectasia | Marked |
| * Testes
Germinal Epith | Degeneration | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	27	TMT:	1	SEX:	Male	DAY ON TEST:	561
		DOSE:	control	DISP:	Moribund Sacrifice	HISTO:	54813

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | Spinal Cord |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | |
|------------------|--|----------|
| * Kidney | Nephropathy | Moderate |
| * Liver | Basophilic Focus | |
| | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-14] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | |
| Peripheral Nerve | Degeneration | Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 28

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 54814

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|---------------------------|-----------------|---------------------|----------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland | * Thymus |
|---------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|------------------|---------------------------------|--------------------------------|---------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | [Clear Cell Focus TGLs = 1-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 29	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54815

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Thyroid Gland

OBSERVATIONS

- | | | |
|------------------|---|----------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Kidney | Nephropathy | Minimal |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 1-5] | |
| | [Hepatocellular Carcinoma TGLs = 2-6] | |
| * Lung | Bronchiole | Mild |
| Mesentery | Fat | Mild |
| | [Necrosis TGLs = 3-9] | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	30	TMT:	1	SEX:	Male	DAY ON TEST:	730
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54816

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | |
|--|--------------------------------|----------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Adenoma | |
| [Hepatocellular Adenoma TGLs = 5-6] | | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith Hyperplasia | Mild |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+4] | | |
| Tooth | Malformation | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 31

TMT: 1

DOSE: control

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 730

HISTO: 54817

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Medulla

* Epididymis

* Heart

* Intestine Small, Duodenum

* Larynx

* Lymph Node, Mesenteric

* Preputial Gland

* Skin

* Testes

* Urinary Bladder

* Bone

* Esophagus

* Intestine Large, Cecum

* Intestine Small, Ileum

* Lung

* Nose

* Prostate

* Spleen

* Thymus

* Bone Marrow

* Eye

* Intestine Large, Colon

* Intestine Small, Jejunum

* Lymph Node, Bronchial

* Pancreas

* Salivary Glands

* Stomach, Forestomach

* Thyroid Gland

* Brain

* Gallbladder

* Intestine Large, Rectum

* Islets, Pancreatic

* Lymph Node, Mandibular

* Pituitary Gland

* Seminal Vesicle

* Stomach, Glandular

* Trachea

MISSING

* Lymph Node, Mediastinal

* Mammary Gland

* Parathyroid Gland

OBSERVATIONS

* Adrenal Cortex

Hypertrophy

Mild

* Harderian Gland

Carcinoma

[Carcinoma TGLs = 1-11]

* Kidney

Nephropathy

Minimal

* Liver

Hepatocellular Adenoma

Multiple

[Hepatocellular Adenoma TGLs = 2-6]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	32	TMT:	1	SEX:	Male	DAY ON TEST:	729
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54818

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------------------|-----------------|---------------------|----------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland | * Thymus |
|---------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- | | | |
|------------------|------------------------|---------|
| * Adrenal Cortex | Hyperplasia | Mild |
| * Kidney | Nephropathy | Minimal |
| * Liver | Hemangiosarcoma | |
| | Hepatocellular Adenoma | |

[Hemangiosarcoma TGLs = 1-16]
 [Hepatocellular Adenoma TGLs = 2-6]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 33	TMT: 1	SEX: Male	DAY ON TEST: 730
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54819

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---------------------------------------|------------------------------|---------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | [Clear Cell Focus TGLs = 1,3-12+13] | | |
| | [Hepatocellular Adenoma TGLs = 2-6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| * Testes | Germinal Epith | Degeneration | Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 34	TMT: 1	SEX: Male	DAY ON TEST: 646
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54820

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Bone | * Epididymis | * Esophagus | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | |

MISSING

- | | |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

OBSERVATIONS

- | | | |
|-------------------------|--|-------------------------|
| * Adrenal Cortex | Lymphoma Malignant
Necrosis | Minimal |
| * Adrenal Medulla | Hyperplasia | Mild |
| * Bone Marrow | Lymphoma Malignant | |
| * Brain | Lymphoma Malignant | |
| * Eye | Cornea
Inflammation | Chronic Active, Minimal |
| | [Inflammation TGLs = 1-11] | |
| * Harderian Gland | Carcinoma
Lymphoma Malignant | |
| | [Carcinoma TGLs = 5-11] | |
| * Heart | Cardiomyopathy
Lymphoma Malignant | Mild |
| * Kidney | Lymphoma Malignant
Nephropathy | Mild |
| * Liver | Hepatocellular Carcinoma
Lymphoma Malignant | |
| | [Hepatocellular Carcinoma TGLs = 4-12] | |
| | [Lymphoma Malignant TGLs = 3-5] | |
| * Lung | Hepatocellular Carcinoma
Lymphoma Malignant | Metastatic (Liver) |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Pancreas | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	34	TMT:	1	SEX:	Male	DAY ON TEST:	646
		DOSE:	control	DISP:	Moribund Sacrifice	HISTO:	54820

ORGAN AND ACCOUNTABLE SITE STATUS

* Prostate	Lymphoma Malignant
* Spleen	Lymphoma Malignant
[Lymphoma Malignant TGLs = 2-5]	
* Urinary Bladder	Lymphoma Malignant

PRIMARY CAUSE OF DEATH - Liver Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 36	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54822

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|--------------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 3-6] | | |
| | [Hepatocellular Carcinoma TGLs = 2-14] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Preputial Gland | | Inflammation | Chronic Active, Moderate |
| Tooth | | Malformation | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 37

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 730
HISTO: 54823

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lung
- * Pancreas
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Bronchial
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mandibular
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder

- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Lymph Node, Mesenteric
- * Prostate
- * Spleen
- * Thymus

MISSING

- * Lymph Node, Mediastinal

- * Mammary Gland

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------|-------------------------|---------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-6] | | |
| * Nose | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Mild |
| | | Polyp, Inflammatory | Moderate |
| Tooth | | Malformation | Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 38

TMT: 1
DOSE: control

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 731
HISTO: 54824

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lung | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | |
|------------------|------------------|---------|
| * Adrenal Cortex | Hypertrophy | Mild |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Mild |
| * Liver | Clear Cell Focus | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 39 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 729 HISTO: 54825

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla * Esophagus * Heart * Intestine Small, Duodenum * Larynx * Lymph Node, Mesenteric * Pituitary Gland * Seminal Vesicle * Stomach, Glandular * Trachea * Bone * Eye * Intestine Large, Cecum * Intestine Small, Ileum * Lung * Nose * Preputial Gland * Skin * Testes * Urinary Bladder * Bone Marrow * Gallbladder * Intestine Large, Colon * Intestine Small, Jejunum * Lymph Node, Bronchial * Pancreas * Prostate * Spleen * Thymus * Brain * Harderian Gland * Intestine Large, Rectum * Islets, Pancreatic * Lymph Node, Mandibular * Parathyroid Gland * Salivary Glands * Stomach, Forestomach * Thyroid Gland

MISSING

- * Lymph Node, Mediastinal * Mammary Gland

OBSERVATIONS

- * Adrenal Cortex Hyperplasia Mild Hypertrophy Mild
* Epididymis Granuloma Sperm Moderate
[Granuloma Sperm TGLs = 1-8]
* Kidney Nephropathy Minimal
* Liver Eosinophilic Focus Multiple
Hepatoblastoma
Hepatocellular Adenoma
Hepatocellular Carcinoma
[Hepatoblastoma TGLs = 3-6]
[Hepatocellular Adenoma TGLs = 2,5,6-13+12+14]
[Hepatocellular Carcinoma TGLs = 4-5]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 40	TMT: 1	SEX: Male	DAY ON TEST: 692
	DOSE: control	DISP: Natural Death	HISTO: 54826

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|--------------------------|-------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Harderian Gland |
| * Heart | * Islets, Pancreatic | * Larynx | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |

MISSING

- | | | |
|-------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Thymus |
|-------------------------|-----------------|----------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|----------|---|----------------------------------|--------------------|
| * Kidney | Capsule | Hemorrhage | Marked |
| | [Hemorrhage TGLs = 4-6] | | |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 1-5] | | |
| | [Hepatocellular Carcinoma TGLs = 2-12] | | |
| * Lung | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 3-5] | | |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	41	TMT:	1	SEX:	Male	DAY ON TEST:	729
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54827

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Liver |
| * Lung | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|----------------|--------------|----------|
| * Kidney | | Nephropathy | Minimal |
| * Testes | Germinal Epith | Degeneration | Moderate |
| Tooth | | Malformation | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 42 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 730 HISTO: 54828

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Nose
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Pancreas
- * Prostate
- * Spleen
- * Thymus
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mediastinal
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

MISSING

- * Lymph Node, Mandibular
- * Mammary Gland

OBSERVATIONS

- * Adrenal Medulla
 - * Kidney
 - * Larynx
 - * Lung
- [Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
- Hyperplasia
 - Nephropathy
 - Metaplasia
 - Alveolar/Bronchiolar Carcinoma
- Mild
 - Minimal
 - Squamous, Minimal

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 43 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 729 HISTO: 54829

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pancreas
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pituitary Gland
- * Seminal Vesicle
- * Testes
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Nose
- * Prostate
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Bronchial
- * Mammary Gland
- * Parathyroid Gland
- * Thymus

OBSERVATIONS

- * Kidney Nephropathy Mild
- * Liver Clear Cell Focus Multiple
- [Hepatocellular Adenoma TGLs = 4,6,5,7-5+12+6] Hepatocellular Adenoma
- * Spleen Hemangiosarcoma
- [Hemangiosarcoma TGLs = 3-12]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 44	TMT: 1	SEX: Male	DAY ON TEST: 708
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54830

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

OBSERVATIONS

- | | | |
|----------------------|--|--------------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Hemangiosarcoma
Hepatocellular Carcinoma
Necrosis | Moderate |
| | [Hemangiosarcoma TGLs = 3-12]
[Necrosis TGLs = 4-5] | |
| * Lung | Alveolar/Bronchiolar Carcinoma
Hepatocellular Carcinoma | Metastatic (Liver) |
| * Skin | Subcut Tiss
Edema | Moderate |
| | [Edema TGLs = 2-13] | |
| * Spleen | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 6-6] | |
| * Stomach, Glandular | Necrosis | Minimal |
| | [Necrosis TGLs = 7-9] | |

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 45	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54831

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Mesenteric | * Nose |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Parathyroid Gland | | | |

OBSERVATIONS

- | | | | |
|------------------|----------------------------|--------------------|----------|
| * Adrenal Cortex | | Hypertrophy | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Eosinophilic Focus | |
| * Lung | Alveolar Epith | Hyperplasia | Minimal |
| | [Hyperplasia TGLs = 1-4] | | |
| Tooth | | Malformation | Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 48

TMT: 1

DOSE: control

SEX: Male

DISP: Terminal Sacrifice

DAY ON TEST: 730

HISTO: 54834

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Small, Duodenum
- * Larynx
- * Nose
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder

- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Pancreas
- * Prostate
- * Spleen
- * Thymus

- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Bronchial
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

- * Brain
- * Gallbladder
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

MISSING

- * Lymph Node, Mandibular

- * Lymph Node, Mediastinal

- * Mammary Gland

OBSERVATIONS

- * Adrenal Cortex
- * Heart
- * Kidney
- * Liver

Hyperplasia
 Hypertrophy
 Cardiomyopathy
 Nephropathy
 Basophilic Focus
 Eosinophilic Focus
 Hepatocellular Adenoma

Mild
 Mild
 Minimal
 Minimal
 Multiple

[Basophilic Focus TGLs = 3-12]

[Hepatocellular Adenoma TGLs = 1,2-5+6]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 49 TMT: 1 DOSE: control

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 730 HISTO: 54835

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla * Epididymis * Harderian Gland * Intestine Large, Rectum * Islets, Pancreatic * Lymph Node, Mandibular * Pancreas * Prostate * Spleen * Thymus * Bone * Esophagus * Heart * Intestine Small, Duodenum * Larynx * Lymph Node, Mediastinal * Parathyroid Gland * Salivary Glands * Stomach, Forestomach * Thyroid Gland * Bone Marrow * Eye * Intestine Large, Cecum * Intestine Small, Ileum * Lung * Lymph Node, Mesenteric * Pituitary Gland * Seminal Vesicle * Stomach, Glandular * Trachea * Brain * Gallbladder * Intestine Large, Colon * Intestine Small, Jejunum * Lymph Node, Bronchial * Nose * Preputial Gland * Skin * Testes * Urinary Bladder

MISSING

- * Mammary Gland

OBSERVATIONS

- * Adrenal Cortex Hypertrophy Mild
* Kidney Nephropathy Minimal
* Liver Clear Cell Focus Hepatocellular Adenoma Tension Lipidosis Minimal
[Clear Cell Focus TGLs = 2-12]
[Hepatocellular Adenoma TGLs = 1-5]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 50	TMT: 1	SEX: Male	DAY ON TEST: 729
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54836

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Minimal |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Mild |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | [Clear Cell Focus TGLs = 3-18] | | |
| | [Hepatocellular Adenoma TGLs = 2-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-15] | | |
| * Nose | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| Tooth | | Odontoma | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 201	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55087

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 202	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55088

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|---------------|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--|--|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 1-12+13] | Hepatocellular Carcinoma | |
| * Lung | | Hepatocellular Carcinoma
Inflammation | Metastatic (Liver)
Chronic Active, Moderate |
| * Nose | Turbinate
Olfactory Epi
Olfactory Epi | Atrophy
Hyperplasia
Metaplasia | Mild
Minimal
Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 203	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55089

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|---|--|
| * Adrenal Cortex | Subcapsular | Carcinoma
Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hemangiosarcoma
Hepatocellular Adenoma | |
| | [Hemangiosarcoma TGLs = 5-5]
[Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4]
[Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Mild
Suppurative, Mild
Respiratory, Mild |
| * Spleen | | Hemangiosarcoma | |
| * Testes | Germinal Epith | Degeneration | Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 204	TMT: 3	SEX: Male	DAY ON TEST: 618
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55090

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|----------------------------|--------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|--------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|---------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|--------------------------|--|---|---|
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Small, Ileum | | Inflammation | Acute, Marked |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-14] | Hepatocellular Carcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Minimal
Suppurative, Minimal
Respiratory, Minimal |
| | Olfactory Epi | | |
| Skeletal Muscle | [Alveolar/Bronchiolar Carcinoma TGLs = 3-16] | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 205	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55091

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|-------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 1,2,3-6+13+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| * Nose | | Adenoma | |
| | Glands, Olfactory Epi | Atrophy | Minimal |
| | Turbinate | | |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |
| | [Hyperplasia TGLs = 4-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 206	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55092

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|--------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|--------------------------|---------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|---------------|--------------------------|---------------------------|-----------------|

INSUFFICIENT TISSUE

- * Intestine Small, Duodenum

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 1-5] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Adenoma TGLs = 2-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-12] | | |
| | [Hyperplasia TGLs = 4-6] | | |
| * Nose | Olfactory Epi | Metaplasia | Respiratory, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 207	TMT: 3	SEX: Male	DAY ON TEST: 721
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55093

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|---------------------|---------------------------|-------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Harderian Gland | * Heart |
| * Islets, Pancreatic | * Lung | * Lymph Node, Mediastinal | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |

OBSERVATIONS

- | | | |
|--|--------------------------|------------------------------------|
| * Adrenal Cortex | Hyperplasia | Mild |
| * Kidney | Nephropathy | Mild |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hepatocellular Adenoma | Multiple
Metastatic (Mesentery) |
| | Hepatocellular Carcinoma | |
| | Sarcoma | |
| [Hepatocellular Carcinoma TGLs = 2-12] | | |
| * Lymph Node, Mesenteric | Hemorrhage | Marked |
| [Hemorrhage TGLs = 4-7] | | |
| Mesentery | Sarcoma | |
| [Sarcoma TGLs = 3-13] | | |
| * Stomach, Forestomach | Sarcoma | Metastatic (Mesentery) |
| * Stomach, Glandular | Sarcoma | Metastatic (Mesentery) |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 208	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55094

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|--------------------------|---------------------------|-----------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|----------------|------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Harderian Gland | | Carcinoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| * Nose | Turbinate | Atrophy | Minimal |
| | | Inflammation | Suppurative, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 209	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55095

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Cyst | Mild |
| | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | Multiple |
| | | Hepatocellular Carcinoma | |
| | [Basophilic Focus TGLs = 3-6] | | |
| | [Hepatocellular Adenoma TGLs = 5-5] | | |
| | [Hepatocellular Carcinoma TGLs = 4-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 210	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55096

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Mild |
| | | Hyperplasia | Mild |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-6] | | |
| * Nose | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 211	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55097

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 7-11] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Clear Cell Focus TGLs = 3-6] | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 2,1,4-5+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5,6,8,9-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Inflammation | Suppurative, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 212	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55098

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|---------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|------------------------------|-------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | [Clear Cell Focus TGLs = 3,4-5+12] | | |
| | [Hepatocellular Adenoma TGLs = 2-5] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| * Nose | | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Preputial Gland | | Ectasia | Moderate |
| | [Ectasia TGLs = 1-8] | | |

ANIMAL NUM: 213	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55099

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|--------------------------|---------------------------|-----------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|---|---|---|
| * Adrenal Cortex | Subcapsular | Adenoma
Hyperplasia | Mild |
| | [Adenoma TGLs = 6-3] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus
Hepatocellular Adenoma
Hepatocellular Carcinoma | Multiple |
| | [Clear Cell Focus TGLs = 3,4-13+14] | | |
| | [Hepatocellular Adenoma TGLs = 3-13] | | |
| | [Hepatocellular Carcinoma TGLs = 2-12] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Hyperplasia
Hyperplasia
Proteinosis
Thrombosis | Multiple
Marked
Marked
Minimal
Mild |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | | |
| * Nose | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Seminal Vesicle | | Congestion | Moderate |
| | [Congestion TGLs = 5-6] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 214	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55100

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|------------------|--|---|--------------------------------------|
| * Adrenal Cortex | Subcapsular | Adenoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 1,2,3-5+12+6] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Mild |
| * Nose | Turbinate
Olfactory Epi
Olfactory Epi | Atrophy
Hyperplasia
Metaplasia | Minimal
Mild
Respiratory, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 215	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55101

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|-----------|--|------------------------|----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Angiectasis | Mild |
| | | Eosinophilic Focus | |
| | | Hepatocellular Adenoma | Multiple |
| | [Eosinophilic Focus TGLs = 4-5] | | |
| | [Hepatocellular Adenoma TGLs = 1,2-12+6] | | |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-12] | | |
| * Nose | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 216	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55102

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|--------------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | | Hepatodiaphragmatic Nodule | |
| | [Hepatocellular Adenoma TGLs = 6-5+12] | | |
| | [Hepatocellular Carcinoma TGLs = 5-12] | | |
| | [Hepatodiaphragmatic Nodule TGLs = 7-6] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma | Multiple |
| | | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4] | | |
| * Nose | Turbinates | Atrophy | Minimal |
| | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Skin | Subcut Tissue | Fibrous Histiocytoma | |
| | | Inflammation | Chronic Active, Moderate |
| | [Fibrous Histiocytoma TGLs = 2-13] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 216 TMT: 3
DOSE: 1.25 mg/m3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 55102

ORGAN AND ACCOUNTABLE SITE STATUS

Tooth [Inflammation TGLs = 1-13+14]

Malformation

Marked

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 217	TMT: 3	SEX: Male	DAY ON TEST: 684
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55103

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|---------------------------|--|---|---------------------------------|
| * Kidney | | Alveolar/Bronchiolar Carcinoma
Infarct | Metastatic (Lung)
Marked |
| | [Infarct TGLs = 5-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 7,8-5+16]
[Hepatocellular Carcinoma TGLs = 9-15] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12]
[Proteinosis TGLs = 4-4] | | |
| * Lymph Node, Bronchial | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Minimal
Respiratory, Minimal |
| Skeletal Muscle | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-13+17] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	217	TMT:	3	SEX:	Male	DAY ON TEST:	684
		DOSE:	1.25 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55103

ORGAN AND ACCOUNTABLE SITE STATUS

* Spleen	Infarct	Moderate
[Infarct TGLs = 6-6]		
* Stomach, Forestomach	Ulcer	Mild

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 218	TMT: 3	SEX: Male	DAY ON TEST: 617
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55104

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | |
|------------------------|--|----------------------|
| * Kidney | Nephropathy | Moderate |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Carcinoma TGLs = 5,6-17+15+16] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,1,2,3,10,7,8,9-4+12+13+14+6+18] | |
| * Nose | Inflammation | Suppurative, Minimal |
| * Stomach, Forestomach | Ulcer | Mild |
| * Testes | Germinal Epith Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 219	TMT: 3	SEX: Male	DAY ON TEST: 715
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55105

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Lymph Node, Mesenteric

OBSERVATIONS

- | | | | |
|----------------------|---|--------------------------------|-------------------|
| * Adrenal Cortex | Subcapsular | Adenoma | |
| * Islets, Pancreatic | | Carcinoma | |
| | [Carcinoma TGLs = 5-12] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 6,7-6+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-4] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 220	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55106

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 3-5+6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinates | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 221	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55107

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|--------------------------|---------------------------|-----------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 222	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55108

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|--------------------------|---------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|---------------|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | |
|------------------------|--|-------------------|
| * Harderian Gland | Adenoma | |
| * Kidney | Nephropathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Clear Cell Focus | |
| | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 3,4,5-5+12+6] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith Hyperplasia | Moderate |
| | Bronchiole Hyperplasia | Moderate |
| | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | |
| Mesentery | Fat | |
| | [Necrosis TGLs = 2-12] | |
| * Nose | Turbinate | Mild |
| * Stomach, Forestomach | Atrophy | Minimal |
| | Hyperplasia | Squamous, Minimal |
| | [Hyperplasia TGLs = 6-9] | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 223	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55109

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|---------------|-------------------------|-----------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland |
|---------------|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|-------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | [Hepatocellular Carcinoma TGLs = 3-12] | Hepatocellular Carcinoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+6] | Proteinosis | Moderate |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |
| * Stomach, Forestomach | | Inflammation | Chronic Active, Minimal |
| * Testes | | Degeneration | Mild |
| | Germinal Epith | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 224	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55110

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

INSUFFICIENT TISSUE

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 2-6] | | |
| | [Hepatocellular Carcinoma TGLs = 3-12] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 225	TMT: 3	SEX: Male	DAY ON TEST: 589
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55111

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Esophagus | * Eye | * Gallbladder | * Harderian Gland |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mesenteric | * Nose |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Spleen | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|--------------------------|-----------------|---------------------|----------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland | * Thymus |
|--------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- | | | |
|---|--|---|
| * Adrenal Medulla | Carcinoma | Metastatic (Islets, Pancreatic) |
| * Epididymis | Carcinoma | Metastatic (Islets, Pancreatic) |
| * Heart | Carcinoma | Metastatic (Islets, Pancreatic) |
| [Carcinoma TGLs = 5-5] | | |
| * Islets, Pancreatic | Carcinoma | |
| * Kidney | Carcinoma
Infarct | Metastatic (Islets, Pancreatic)
Moderate |
| [Carcinoma TGLs = 8,9,10-13+6] | | |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Carcinoma
Eosinophilic Focus | Metastatic (Islets, Pancreatic) |
| [Carcinoma TGLs = 7-5] | | |
| * Lung | Alveolar/Bronchiolar Carcinoma
Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Metastatic (Islets, Pancreatic)
Moderate
Moderate
Moderate |
| [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| [Carcinoma TGLs = 1,3,4-12+4] | | |
| * Lymph Node, Bronchial | Alveolar/Bronchiolar Carcinoma
Carcinoma | Metastatic (Lung)
Metastatic (Islets, Pancreatic) |
| * Lymph Node, Mediastinal | Carcinoma | Metastatic (Islets, Pancreatic) |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 225	TMT: 3	SEX: Male	DAY ON TEST: 589
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55111

ORGAN AND ACCOUNTABLE SITE STATUS

* Pancreas		Carcinoma	Metastatic (Islets, Pancreatic)
	[Carcinoma TGLs = 6-5]		
Skeletal Muscle		Carcinoma	Metastatic (Islets, Pancreatic)
	[Carcinoma TGLs = 11-14]		
* Skin		Carcinoma	Metastatic (Islets, Pancreatic)
* Stomach, Forestomach		Ulcer	Minimal
* Testes		Carcinoma	Metastatic (Islets, Pancreatic)
	Germinal Epith	Degeneration	Moderate

PRIMARY CAUSE OF DEATH - Islets, Pancreatic Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 226	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55112

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatoblastoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-5+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Metastatic (Liver) |
| | | Hepatoblastoma | Metastatic (Liver) |
| | | Hepatocellular Carcinoma | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | Proteinosis | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Stomach, Forestomach | | Ulcer | Mild |
| * Testes | Germinal Epith | Degeneration | Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 227 TMT: 3 DOSE: 1.25 mg/m3

SEX: Male DISP: Moribund Sacrifice

DAY ON TEST: 660 HISTO: 55113

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Epididymis * Esophagus * Eye
* Gallbladder * Harderian Gland * Heart * Intestine Large, Cecum
* Intestine Large, Colon * Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum
* Intestine Small, Jejunum * Islets, Pancreatic * Liver * Lymph Node, Bronchial
* Lymph Node, Mandibular * Lymph Node, Mesenteric * Prostate * Pancreas
* Pituitary Gland * Preputial Gland * Spleen * Salivary Glands
* Seminal Vesicle * Skin * Stomach, Forestomach
* Stomach, Glandular * Thymus * Thyroid Gland
* Urinary Bladder * Trachea

MISSING

- * Mammary Gland * Parathyroid Gland

OBSERVATIONS

- * Kidney Nephropathy Minimal
* Larynx Metaplasia Squamous, Minimal
* Lung Alveolar/Bronchiolar Carcinoma
Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Marked
[Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4]
* Nose Inflammation Suppurative, Minimal
Olfactory Epi Metaplasia Respiratory, Minimal
* Testes Germinal Epith Degeneration Moderate

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 228	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55114

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| Coagulating Gland | | Adenoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Degeneration | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 3-12] | | |
| | [Hepatocellular Carcinoma TGLs = 2-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Testes | Germinal Epith | Degeneration | Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 229	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55115

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-----------|---|---|---|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | Renal Tubule | Hyperplasia
Nephropathy | Mild
Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus
Clear Cell Focus
Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 2-12] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Moderate
Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4+6] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-12] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Minimal
Respiratory, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 230	TMT: 3	SEX: Male	DAY ON TEST: 457
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55116

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Brain	* Esophagus	* Preputial Gland	* Skin
---------	-------------	-------------------	--------

MISSING

* Lymph Node, Mandibular	* Mammary Gland
--------------------------	-----------------

AUTO PRECLUDES DIAG.

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Epididymis	* Eye	* Gallbladder	* Harderian Gland
* Intestine Large, Cecum	* Intestine Large, Colon	* Intestine Large, Rectum	* Intestine Small, Duodenum
* Intestine Small, Ileum	* Intestine Small, Jejunum	* Islets, Pancreatic	* Kidney
* Larynx	* Lung	* Lymph Node, Bronchial	* Lymph Node, Mediastinal
* Lymph Node, Mesenteric	* Nose	* Pancreas	* Parathyroid Gland
* Pituitary Gland	* Prostate	* Salivary Glands	* Seminal Vesicle
* Spleen	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thymus	* Thyroid Gland	* Trachea	* Urinary Bladder

OBSERVATIONS

* Heart	Mineralization	Mild
* Liver	Hepatocellular Carcinoma	
	Necrosis	Moderate
[Hepatocellular Carcinoma TGLs = 1-12]		

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 231	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55117

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * Bone | * Brain | * Esophagus |
| * Eye | * Gallbladder | * Harderian Gland | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|--------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|--------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Bone Marrow | | Hemangiosarcoma | |
| * Epididymis | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 1-8] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 2-5] | Hepatocellular Adenoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 232	TMT: 3	SEX: Male	DAY ON TEST: 639
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55118

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|---------------------------|--|---|---------------------------------|
| * Kidney | | Hepatocellular Carcinoma
Nephropathy | Metastatic (Liver)
Minimal |
| | [Hepatocellular Carcinoma TGLs = 6-13] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma
Hepatodiaphragmatic Nodule | Multiple |
| | [Hepatocellular Carcinoma TGLs = 7,9-15+16+5]
[Hepatodiaphragmatic Nodule TGLs = 8-6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma
Hepatocellular Carcinoma
Proteinosis | Metastatic (Liver)
Minimal |
| | [Hepatocellular Carcinoma TGLs = 1,2,3,4,5-12+6+4] | | |
| * Lymph Node, Bronchial | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Lymph Node, Mediastinal | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Nose | Olfactory Epi | Hyperplasia
Inflammation | Minimal
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Testes | Germinal Epith | Degeneration | Minimal |
| * Thymus | | Hepatocellular Carcinoma | Metastatic (Liver) |
| | [Hepatocellular Carcinoma TGLs = 10-3] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 232 TMT: 3
DOSE: 1.25 mg/m3

SEX: Male
DISP: Moribund Sacrifice

DAY ON TEST: 639
HISTO: 55118

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 233	TMT: 3	SEX: Male	DAY ON TEST: 729
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55119

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Gallbladder | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|--------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|--------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Moderate |
| * Eye | Cornea | Inflammation | Chronic Active, Mild |
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 1-11] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 2,3-12+6] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5,6-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| | Respirat Epith | Metaplasia | Squamous, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 234	TMT: 3	SEX: Male	DAY ON TEST: 551
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55120

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Nose | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Intestine Large, Rectum

OBSERVATIONS

- | | | | |
|--|------------------------------|---|-------------------------------|
| * Brain | | Infiltration Cellular
Necrosis | Histiocyte, Moderate
Mild |
| * Kidney | | Alveolar/Bronchiolar Carcinoma
Infarct | Metastatic (Lung)
Moderate |
| [Alveolar/Bronchiolar Carcinoma TGLs = 2-6] | | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Minimal
Minimal
Minimal |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | | |
| * Salivary Glands | | Inflammation | Chronic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 235	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55121

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | | Clear Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 4-5] | Hepatocellular Adenoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | Proteinosis | Minimal |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-12] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 236	TMT: 3	SEX: Male	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55122

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|--|--------------------------------|----------------------|
| * Islets, Pancreatic | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Clear Cell Focus TGLs = 5-12] | | |
| | [Hepatocellular Adenoma TGLs = 4-6] | | |
| | [Hepatocellular Carcinoma TGLs = 3-13] | | |
| * Lung | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-14+4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Testes | Germinal Epith | Degeneration | Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 237	TMT: 3	SEX: Male	DAY ON TEST: 621
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55123

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-------------------|-------------------|-------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Heart |
| * Lymph Node, Mediastinal | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Parathyroid Gland | * Thymus | | |

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Pancreas | * Stomach, Forestomach |
| * Stomach, Glandular | | | |

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|--------------------|
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Carcinoma TGLs = 4,5,6,7,8,9,10,11-5+6+13+14+15+16+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Metastatic (Liver) |
| | | Hepatocellular Carcinoma | Mild |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | Proteinosis | |
| * Nose | Turbinate | Atrophy | Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 238 TMT: 3 DOSE: 1.25 mg/m3

SEX: Male DISP: Natural Death

DAY ON TEST: 717 HISTO: 55124

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Epididymis * Esophagus * Eye
* Harderian Gland * Heart * Lymph Node, Bronchial * Lymph Node, Mediastinal
* Lymph Node, Mesenteric * Pancreas * Pituitary Gland * Preputial Gland
* Prostate * Salivary Glands * Seminal Vesicle * Skin
* Spleen * Testes * Thymus * Thyroid Gland
* Urinary Bladder

MISSING

- * Lymph Node, Mandibular * Mammary Gland * Parathyroid Gland

AUTO PRECLUDES DIAG.

- * Gallbladder * Intestine Large, Cecum * Intestine Large, Colon * Intestine Large, Rectum
* Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum * Larynx
* Stomach, Glandular * Trachea

OBSERVATIONS

- * Islets, Pancreatic Carcinoma
* Kidney Nephropathy Minimal
* Liver Eosinophilic Focus Hepatocellular Carcinoma Necrosis Multiple Mild
[Eosinophilic Focus TGLs = 5-13]
[Hepatocellular Carcinoma TGLs = 6,7-5]
[Necrosis TGLs = 4-6]
* Lung Alveolar/Bronchiolar Adenoma Alveolar/Bronchiolar Carcinoma Multiple Marked Moderate Minimal
Alveolar Epith Hyperplasia
Bronchiole Hyperplasia Proteinosis
[Alveolar/Bronchiolar Adenoma TGLs = 1-4]
[Alveolar/Bronchiolar Carcinoma TGLs = 2,3-12+4]
* Nose Turbinate Atrophy Minimal
Inflammation Suppurative, Mild
Olfactory Epi Metaplasia Respiratory, Mild

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	238	TMT:	3	SEX:	Male	DAY ON TEST:	717
		DOSE:	1.25 mg/m3	DISP:	Natural Death	HISTO:	55124

ORGAN AND ACCOUNTABLE SITE STATUS

* Stomach, Forestomach

Ulcer

Mild

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 239	TMT: 3	SEX: Male	DAY ON TEST: 617
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55125

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|---------------|---------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|--------------------------|
| * Kidney | | Nephropathy | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 3-12] | Hepatocellular Carcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | Hyperplasia | Minimal |
| | | Proteinosis | Minimal |
| * Nose | | Inflammation | Suppurative, Mild |
| * Preputial Gland | | Inflammation | Chronic Active, Moderate |
| * Testes | Germinal Epith | Degeneration | Moderate |
| | [Degeneration TGLs = 2-8] | | |
| Tooth | | Inflammation | Chronic Active, Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 240 TMT: 3
DOSE: 1.25 mg/m3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 55126

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder

- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Pancreas
- * Prostate
- * Spleen
- * Thymus

- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland

- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

MISSING

- * Lymph Node, Mediastinal
- * Mammary Gland

OBSERVATIONS

- | | | | |
|------------------|------------------------------|---|------------------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Mild |
| * Nose | Olfactory Epi | Hyperplasia | Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 241 TMT: 3 DOSE: 1.25 mg/m3

SEX: Male DISP: Moribund Sacrifice

DAY ON TEST: 723 HISTO: 55127

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Epididymis * Esophagus * Eye
* Gallbladder * Harderian Gland * Heart * Intestine Large, Cecum
* Intestine Large, Colon * Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum
* Intestine Small, Jejunum * Islets, Pancreatic * Lymph Node, Bronchial * Lymph Node, Mediastinal
* Lymph Node, Mesenteric * Pancreas * Parathyroid Gland * Pituitary Gland
* Preputial Gland * Prostate * Salivary Glands * Seminal Vesicle
* Skin * Spleen * Stomach, Forestomach * Stomach, Glandular
* Thymus * Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Lymph Node, Mandibular * Mammary Gland

OBSERVATIONS

- * Kidney Nephropathy Mild
* Larynx Metaplasia Squamous, Minimal
* Liver Eosinophilic Focus
Hepatocellular Adenoma
* Lung Alveolar/Bronchiolar Carcinoma Multiple
Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Mild
[Alveolar/Bronchiolar Carcinoma TGLs = 1-4+12]
* Nose Turbinate Atrophy Minimal
Inflammation Suppurative, Minimal
Olfactory Epi Metaplasia Respiratory, Mild
* Testes Germinal Epith Degeneration Marked

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 242	TMT: 3	SEX: Male	DAY ON TEST: 571
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55128

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|--------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
|-------------------------|--------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | |
|--|--------------------------------|----------------------|
| * Heart | Inflammation | Suppurative, Minimal |
| * Kidney | Nephropathy | Marked |
| [Nephropathy TGLs = 3-6] | | |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hepatocellular Carcinoma | |
| [Hepatocellular Carcinoma TGLs = 2-12+13+14] | | |
| * Lung | Alveolar/Bronchiolar Adenoma | Metastatic (Liver) |
| | Alveolar/Bronchiolar Carcinoma | Mild |
| | Hepatocellular Carcinoma | Moderate |
| | Bronchiole | Mild |
| | Alveolar Epith | |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | Hyperplasia | |
| | Hyperplasia | |
| | Proteinosis | |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 243 TMT: 3
DOSE: 1.25 mg/m3

SEX: Male
DISP: Terminal Sacrifice

DAY ON TEST: 729
HISTO: 55129

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder
- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Pancreas
- * Prostate
- * Spleen
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Bronchial
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea

MISSING

- * Lymph Node, Mediastinal
- * Mammary Gland

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Larynx Metaplasia Squamous, Minimal
- * Liver Hepatocellular Adenoma Multiple
[Hepatocellular Adenoma TGLs = 1-5]
- * Lung Alveolar/Bronchiolar Carcinoma Multiple
Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Mild
[Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4]
- * Nose Turbinate Atrophy Mild
Olfactory Epi Metaplasia Respiratory, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 244	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55130

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|-------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|--|--------------------------|--------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Islets, Pancreatic | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatoblastoma | |
| | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Clear Cell Focus TGLs = 2,3,4-12+13+5+14] | | |
| | [Hepatoblastoma TGLs = 1-6] | | |
| | [Hepatocellular Adenoma TGLs = 6-15] | | |
| | [Hepatocellular Carcinoma TGLs = 5-15] | | |
| * Lung | | Hepatoblastoma | Metastatic (Liver) |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Hepatoblastoma TGLs = 7-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 245	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55131

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|---|--------------------------------|----------------------|
| * Islets, Pancreatic | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 2,3-6+12] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 246 TMT: 3
DOSE: 1.25 mg/m3

SEX: Male
DISP: Natural Death

DAY ON TEST: 713
HISTO: 55132

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Pituitary Gland
- * Skin
- * Thyroid Gland
- * Adrenal Medulla
- * Epididymis
- * Heart
- * Preputial Gland
- * Stomach, Forestomach
- * Trachea
- * Bone
- * Esophagus
- * Lymph Node, Mediastinal
- * Prostate
- * Testes
- * Bone Marrow
- * Gallbladder
- * Parathyroid Gland
- * Salivary Glands
- * Thymus

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Mammary Gland

AUTO PRECLUDES DIAG.

- * Eye
- * Intestine Small, Duodenum
- * Lymph Node, Mesenteric
- * Spleen
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Nose
- * Stomach, Glandular
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Pancreas
- * Urinary Bladder
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Seminal Vesicle

OBSERVATIONS

- * Kidney [Infarct TGLs = 6-6] Infarct Marked
- * Larynx Metaplasia Squamous, Minimal
- * Liver Hepatocellular Adenoma Hepatodiaphragmatic Nodule
- [Hepatocellular Adenoma TGLs = 8-6]
- [Hepatodiaphragmatic Nodule TGLs = 9-12]
- * Lung Alveolar/Bronchiolar Adenoma Alveolar/Bronchiolar Carcinoma Proteinosi Moderate
- [Alveolar/Bronchiolar Adenoma TGLs = 2-4]
- [Alveolar/Bronchiolar Carcinoma TGLs = 1-4]
- [Proteinosi TGLs = 3,4,7-4]

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 247	TMT: 3	SEX: Male	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55133

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Clear Cell Focus TGLs = 2-12] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Adenoma TGLs = 4-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 248	TMT: 3	SEX: Male	DAY ON TEST: 698
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55134

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|---------------------|-------------------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
| * Parathyroid Gland | | | |

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 3-5] | Hepatocellular Carcinoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | Proteinosis | Mild |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Seminal Vesicle | | Inflammation | Chronic Active, Mild |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 249	TMT: 3	SEX: Male	DAY ON TEST: 611
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55135

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|---------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland |
|---------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------------------|--|-----------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hemangiosarcoma | |
| | | Necrosis | Mild |
| | [Hemangiosarcoma TGLs = 1,2,3,4-5+12+13+6] | | |
| * Lung | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Minimal |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Prostate | | Inflammation | Acute, Moderate |
| * Stomach, Glandular | | Ulcer | Moderate |
| | [Ulcer TGLs = 6-9] | | |

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 250	TMT: 3	SEX: Male	DAY ON TEST: 631
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55136

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Nose | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Thymus |
|-------------------------|--------------------------|-----------------|----------|

OBSERVATIONS

- | | | | |
|----------------------|---|------------------------------|--------------------|
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | Metastatic (Liver) |
| | | Hepatocellular Carcinoma | Mild |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Adenoma TGLs = 3-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-12] | | |
| * Spleen | | Hemangiosarcoma | |
| * Stomach, Glandular | | Necrosis | Minimal |
| | [Necrosis TGLs = 4-9] | | |
| * Testes | Germinal Epith | Degeneration | Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 401	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54987

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|---------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| | | Hypertrophy | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 3-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-6+4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 402	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54988

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 4,7,5-5+6] | Hepatocellular Adenoma | Multiple |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,6-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Moderate
Suppurative, Mild
Respiratory, Moderate |
| | Olfactory Epi | | |
| Tooth | | Malformation | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNV

ANIMAL NUM: 403	TMT: 5	SEX: Male	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54989

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|---------------|--------------------------|-----------------|----------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland | * Thymus |
|---------------|--------------------------|-----------------|----------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Clear Cell Focus TGLs = 1-5] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | | Alveolar/Bronchiolar Carcinoma | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 404	TMT: 5	SEX: Male	DAY ON TEST: 647
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 54990

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|--|--------------------------------|--------------------------|
| * Epididymis | Granuloma Sperm | Mild |
| [Granuloma Sperm TGLs = 3-8] | | |
| * Kidney | Nephropathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hemangiosarcoma | |
| [Hemangiosarcoma TGLs = 4-6] | | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Mild |
| | Alveolar Epith | Mild |
| | Bronchiole | Moderate |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Mild |
| | Olfactory Epi | Suppurative, Mild |
| | | Respiratory, Mild |
| * Skin | Inflammation | Chronic Active, Moderate |
| [Inflammation TGLs = 5-13] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 405	TMT: 5	SEX: Male	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54991

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|--------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|--------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 406	TMT: 5	SEX: Male	DAY ON TEST: 631
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 54992

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 4,5-5+12+13] | Hepatocellular Carcinoma | Multiple |
| * Lung | Alveolar Epith
Bronchiole | Hepatocellular Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Metastatic (Liver)
Mild
Minimal
Moderate |
| | [Hepatocellular Carcinoma TGLs = 1,2,3,6-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Mild
Suppurative, Mild
Respiratory, Mild |
| * Testes | Olfactory Epi
Germinal Epith | Degeneration | Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 407	TMT: 5	SEX: Male	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54993

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|--------------------------|---------------------------|-----------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|--------------------------|---------------------------|-----------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 2-5] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Mild |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | | Turbinate | Marked |
| | | Olfactory Epi | Suppurative, Minimal |
| | | | Respiratory, Marked |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 408	TMT: 5	SEX: Male	DAY ON TEST: 361
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 54994

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|---|---|---|
| * Esophagus | Arteriole | Inflammation | Acute, Moderate |
| * Kidney | | Nephropathy | Mild |
| * Larynx | Arteriole | Inflammation
Metaplasia | Acute, Moderate
Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3,4,5-13+5+12] | Hepatocellular Adenoma | Multiple |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Minimal
Minimal
Mild |
| * Nose | Turbinate
Olfactory Epi
Olfactory Epi | Atrophy
Hyperplasia
Metaplasia | Mild
Minimal
Respiratory, Minimal |
| * Stomach, Glandular | Arteriole | Inflammation | Acute, Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Adenoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 409	TMT: 5	SEX: Male	DAY ON TEST: 460
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 54995

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|----------|---|---|--------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | [Basophilic Focus TGLs = 3-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Mild
Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | | Atrophy | Mild |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 410	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54996

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 1,2-12+14] | Hepatocellular Carcinoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-6+4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Testes | Germinal Epith | Degeneration | Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 411	TMT: 5	SEX: Male	DAY ON TEST: 562
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 54997

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|---------------|--|--------------------------------|-------------------|
| * Gallbladder | | Degeneration | Hyaline, Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| | [Hepatocellular Carcinoma TGLs = 3-13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Minimal |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12] | | |
| Mesentery | | Necrosis | Mild |
| | Fat | | |
| | [Necrosis TGLs = 5-6] | | |
| * Nose | | Atrophy | Mild |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 412	TMT: 5	SEX: Male	DAY ON TEST: 719
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 54998

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|-------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4+12] | | |
| | [Proteinosis TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 5-13] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 413	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 54999

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3,4-5+13+14] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | | Alveolar/Bronchiolar Carcinoma | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Chronic Active, Mild |
| | | Inflammation | Moderate |
| | | Proteinosis | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,5-6+12+4] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 414	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55000

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | |

MISSING

- | | | |
|---------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland |
|---------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|------------------------|------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 1-6] | Hepatocellular Adenoma | |
| * Lung | | Carcinoma | Metastatic (Urinary Bladder) |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Carcinoma TGLs = 2-4] | Proteinosis | Marked |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Urinary Bladder | | Carcinoma | |
| | Transit Epithe | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 415	TMT: 5	SEX: Male	DAY ON TEST: 697
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55001

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|----------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Harderian Gland |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|---------------|-------------------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
| * Thymus | | | |

AUTO PRECLUDES DIAG.

- | | | | |
|-------|--------------------------|--------------------------|----------------------------|
| * Eye | * Intestine Large, Cecum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
|-------|--------------------------|--------------------------|----------------------------|

OBSERVATIONS

- | | | | |
|-----------------------------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Small, Duodenum | | Ulcer | Marked |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-12] | Hepatocellular Carcinoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Hepatocellular Carcinoma | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | Hyperplasia | Moderate |
| | | Proteinosis | |
| * Lymph Node, Mediastinal | | Hepatocellular Carcinoma | Metastatic (Liver) |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 415 TMT: 5
DOSE: 2.5 mg/m3

SEX: Male
DISP: Natural Death

DAY ON TEST: 697
HISTO: 55001

ORGAN AND ACCOUNTABLE SITE STATUS

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 416	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55002

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|---------------------------------------|------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-6] | | |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 417 TMT: 5 DOSE: 2.5 mg/m3

SEX: Male DISP: Moribund Sacrifice

DAY ON TEST: 652 HISTO: 55003

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Brain
* Epididymis * Esophagus * Eye * Gallbladder
* Harderian Gland * Intestine Large, Cecum * Intestine Large, Colon * Intestine Large, Rectum
* Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum * Islets, Pancreatic
* Lymph Node, Mandibular * Lymph Node, Mediastinal * Lymph Node, Mesenteric * Pancreas
* Parathyroid Gland * Pituitary Gland * Preputial Gland * Prostate
* Salivary Glands * Seminal Vesicle * Skin * Stomach, Glandular
* Testes * Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Lymph Node, Bronchial * Mammary Gland

OBSERVATIONS

- * Bone Marrow Hemangiosarcoma
* Heart Hemangiosarcoma
* Kidney Renal Tubule Necrosis Mild
[Nephropathy TGLs = 4-6] Nephropathy Mild
* Larynx Metaplasia Squamous, Minimal
* Liver Hemangiosarcoma Hepatocellular Carcinoma
[Hemangiosarcoma TGLs = 3,6-13+6]
* Lung Alveolar/Bronchiolar Carcinoma Multiple
Alveolar Epith Hemangiosarcoma Marked
Bronchiole Hyperplasia Moderate
[Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+12] Proteinosis Moderate
* Nose Turbinate Atrophy Mild
Olfactory Epi Inflammation Suppurative, Mild
Metaplasia Respiratory, Moderate
* Spleen Hemangiosarcoma
* Stomach, Forestomach Ulcer Mild
[Ulcer TGLs = 5-9]

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	417	TMT:	5	SEX:	Male	DAY ON TEST:	652
		DOSE:	2.5 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55003

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus

Hemangiosarcoma

PRIMARY CAUSE OF DEATH - Heart Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 418	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55004

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|----------|----------------------------------|--------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma | TGLs = 1,2,3,4-12+13+4] | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 419	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55005

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Parathyroid Gland | | | |

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 420	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55006

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Urinary Bladder | |

MISSING

- | | | |
|-----------------|---------------------|-----------|
| * Mammary Gland | * Parathyroid Gland | * Trachea |
|-----------------|---------------------|-----------|

OBSERVATIONS

- | | | | |
|---------------------------|---|---|----------------------------------|
| * Kidney | Renal Tubule | Hyperplasia
Nephropathy | Moderate
Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus
Hemorrhage
Hepatocellular Adenoma | Moderate |
| | [Hemorrhage TGLs = 2-5]
[Hepatocellular Adenoma TGLs = 3-13] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | Turbinates | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

ANIMAL NUM: 421	TMT: 5	SEX: Male	DAY ON TEST: 692
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55007

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

* Adrenal Cortex	* Adrenal Medulla	* Bone	* Bone Marrow
* Brain	* Epididymis	* Esophagus	* Harderian Gland
* Heart	* Islets, Pancreatic	* Lymph Node, Bronchial	* Lymph Node, Mesenteric
* Pancreas	* Pituitary Gland	* Preputial Gland	* Salivary Glands
* Skin	* Stomach, Forestomach	* Stomach, Glandular	* Testes
* Thyroid Gland	* Trachea	* Urinary Bladder	

MISSING

* Lymph Node, Mandibular	* Lymph Node, Mediastinal	* Mammary Gland	* Parathyroid Gland
* Thymus			

AUTO PRECLUDES DIAG.

* Eye	* Gallbladder	* Intestine Large, Cecum	* Intestine Large, Colon
* Intestine Large, Rectum	* Intestine Small, Duodenum	* Intestine Small, Ileum	* Intestine Small, Jejunum
* Prostate	* Seminal Vesicle		

OBSERVATIONS

* Kidney		Nephropathy	Minimal
* Larynx		Metaplasia	Squamous, Minimal
* Liver		Hepatocellular Adenoma	
		Hepatocellular Carcinoma	
		Necrosis	Mild
	[Hepatocellular Carcinoma TGLs = 3-12]		
	[Necrosis TGLs = 1,2-6+5]		
* Lung		Alveolar/Bronchiolar Carcinoma	
	Alveolar Epith	Hyperplasia	Mild
	Bronchiole	Hyperplasia	Mild
		Proteinosis	Moderate
	[Alveolar/Bronchiolar Carcinoma TGLs = 4-4]		
* Nose		Atrophy	Moderate
	Turbinate	Inflammation	Suppurative, Minimal
	Olfactory Epi	Metaplasia	Respiratory, Moderate
* Spleen		Hemangiosarcoma	

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	421	TMT:	5
		DOSE:	2.5 mg/m3

SEX:	Male
DISP:	Natural Death

DAY ON TEST:	692
HISTO:	55007

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNV

ANIMAL NUM: 422	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55008

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Parathyroid Gland | | | |

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocellular Adenoma | |
| | [Basophilic Focus TGLs = 2-6] | | |
| | [Hepatocellular Adenoma TGLs = 1-12] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| * Nose | Turbinates | Atrophy
Inflammation | Mild
Suppurative, Mild |
| | Respirat Epith
Olfactory Epi | Metaplasia
Metaplasia | Squamous, Minimal
Respiratory, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 423	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55009

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|-----------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|--------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | |
|---|---|--|
| * Intestine Small, Ileum
[Inflammation TGLs = 4-13] | Inflammation | Chronic Active, Moderate |
| * Kidney | Nephropathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver
[Hepatocellular Adenoma TGLs = 2-12] | Clear Cell Focus
Hepatocellular Adenoma | |
| * Lung
Alveolar Epith
Bronchiole
[Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| * Lymph Node, Mesenteric
[Hyperplasia TGLs = 5-7] | Hyperplasia | Lymphoid, Minimal |
| * Nose
Turbinate
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Moderate
Suppurative, Mild
Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 424	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55010

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|---------------|-------------------------|-----------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland |
|---------------|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------------|---|---|--|
| * Adrenal Cortex | Subcapsular | Adenoma | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Eosinophilic Focus TGLs = 4-5] | Eosinophilic Focus | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+13]
[Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Mild
Suppurative, Moderate
Respiratory, Mild |
| | Olfactory Epi | | |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |
| * Testes | Germinal Epith | Degeneration | Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 425	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55011

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Clear Cell Focus | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 1-12] | | |
| * Lung | | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| * Nose | | Atrophy | Mild |
| | Turbinate | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Urinary Bladder | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 2-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 426	TMT: 5	SEX: Male	DAY ON TEST: 660
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55012

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Skin | | Metaplasia | Osseous, Mild |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 427	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55013

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 1,3-12+6] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Adenoma TGLs = 4-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 428	TMT: 5	SEX: Male	DAY ON TEST: 723
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55014

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|------------|--|---|-------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pancreas | | Atrophy | Mild |
| * Testes | Germinal Epith | Degeneration | Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 429	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55015

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | [Hepatocellular Adenoma TGLs = 3-6] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,4-12+13+14]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 430	TMT: 5	SEX: Male	DAY ON TEST: 533
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55016

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|------------------------|----------------------|-------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Islets, Pancreatic | * Liver |
| * Lymph Node, Mandibular | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|---------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Parathyroid Gland | | | |

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Stomach, Glandular | * Thymus | |

OBSERVATIONS

- | | | | |
|------------------|---|---|--|
| * Adrenal Cortex | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Heart | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Kidney | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Moderate
Mild
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 6-7] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Mild
Respiratory, Minimal |
| Skeletal Muscle | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4,5-12+13+6] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 430 TMT: 5
DOSE: 2.5 mg/m3

SEX: Male
DISP: Natural Death

DAY ON TEST: 533
HISTO: 55016

ORGAN AND ACCOUNTABLE SITE STATUS

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 431	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55017

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|---------------|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus
Inflammation | Chronic, Mild |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Moderate |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | | |
| * Nose | Turbinate
Olfactory Epi
Olfactory Epi | Atrophy
Hyperplasia
Metaplasia | Moderate
Minimal
Respiratory, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 432	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55018

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|-------------------|----------------|--------------------------------|-------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Eosinophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Mild |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 433	TMT: 5	SEX: Male	DAY ON TEST: 460
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55019

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 2,3-6] | Hepatocellular Adenoma | Multiple |
| * Lung | Bronchiole
Alveolar Epith | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Mild
Suppurative, Minimal
Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 434	TMT: 5	SEX: Male	DAY ON TEST: 597
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55020

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|--------------------------|------------------------|----------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Harderian Gland |
| * Heart | * Islets, Pancreatic | * Kidney | * Larynx |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mediastinal | * Thymus | | |

OBSERVATIONS

- | | | | |
|-----------|---|---|---|
| * Liver | | Fatty Change
Hemangiosarcoma
Hepatocellular Adenoma | Mild
Multiple |
| | [Fatty Change TGLs = 5-5]
[Hemangiosarcoma TGLs = 6-12]
[Hepatocellular Adenoma TGLs = 3,4-5+6] | | |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Moderate
Mild
Acute, Moderate
Mild |
| Mesentery | Fat
[Necrosis TGLs = 2-13] | Necrosis | Mild |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Minimal
Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Inflammation

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 435	TMT: 5	SEX: Male	DAY ON TEST: 617
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55021

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 7-5] | | |
| | [Hepatocellular Carcinoma TGLs = 8-14] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | | Alveolar/Bronchiolar Carcinoma | Metastatic (Liver) |
| | | Hepatocellular Carcinoma | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,4,5-12+13+4] | | |
| | [Proteinosis TGLs = 6-4] | | |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Thymus | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	435	TMT:	5
		DOSE:	2.5 mg/m3

SEX:	Male
DISP:	Moribund Sacrifice

DAY ON TEST:	617
HISTO:	55021

ORGAN AND ACCOUNTABLE SITE STATUS

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 436 TMT: 5 DOSE: 2.5 mg/m3

SEX: Male DISP: Moribund Sacrifice

DAY ON TEST: 627 HISTO: 55022

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Epididymis * Esophagus * Eye
* Harderian Gland * Heart * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Islets, Pancreatic * Pancreas * Parathyroid Gland
* Pituitary Gland * Preputial Gland * Prostate * Salivary Glands
* Seminal Vesicle * Skin * Stomach, Forestomach * Stomach, Glandular
* Testes * Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Mammary Gland

OBSERVATIONS

- * Gallbladder Lymphoma Malignant
* Intestine Small, Duodenum Lymphoma Malignant
* Intestine Small, Ileum Lymphoma Malignant
* Intestine Small, Jejunum Lymphoma Malignant
* Kidney Lymphoma Malignant
* Larynx Metaplasia Squamous, Minimal
* Liver Lymphoma Malignant
[Lymphoma Malignant TGLs = 8,9-5+12]
* Lung Alveolar Epith Hyperplasia Moderate
Bronchiole Hyperplasia Mild
Lymphoma Malignant
Proteinosis Moderate
Lymph Node Renal Lymphoma Malignant
Axillary Lymphoma Malignant
Deep Cervical Lymphoma Malignant
Iliac Lymphoma Malignant
[Lymphoma Malignant TGLs = 7-6]
[Lymphoma Malignant TGLs = 3,4-13+14]
[Lymphoma Malignant TGLs = 10-15]
[Lymphoma Malignant TGLs = 11-16]
* Lymph Node, Bronchial Lymphoma Malignant
* Lymph Node, Mandibular Lymphoma Malignant

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 436	TMT: 5	SEX: Male	DAY ON TEST: 627
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55022

ORGAN AND ACCOUNTABLE SITE STATUS

[Lymphoma Malignant	TGLs = 1,2-12+8]		
* Lymph Node, Mediastinal		Lymphoma Malignant	
[Lymphoma Malignant	TGLs = 5-3]		
* Lymph Node, Mesenteric		Lymphoma Malignant	
[Lymphoma Malignant	TGLs = 12-7]		
* Nose	Turbinates	Atrophy	Mild
	Olfactory Epi	Inflammation	Suppurative, Mild
		Metaplasia	Respiratory, Moderate
* Spleen		Lymphoma Malignant	
[Lymphoma Malignant	TGLs = 6-5]		
* Thymus		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 437	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55023

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|-------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland | * Pituitary Gland |
|-------------------------|--------------------------|-----------------|-------------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Larynx | | Degeneration | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | [Clear Cell Focus TGLs = 3,5-5+13] | | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+12] | | |
| * Nose | | Atrophy | Marked |
| | Turbinates | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 438	TMT: 5	SEX: Male	DAY ON TEST: 652
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55024

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|--------------------------|--------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------|-----------------------------|--------------------------|----------------------------|
| * Gallbladder | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
|---------------|-----------------------------|--------------------------|----------------------------|

OBSERVATIONS

- | | | |
|---------------------------|---|-----------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 4,5-6+12] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4] | |
| * Lymph Node, Bronchial | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Lymph Node, Mediastinal | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | Turbinate | Mild |
| | Olfactory Epi | Suppurative, Mild |
| | | Respiratory, Moderate |
| Skeletal Muscle | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 6-12] | |
| * Stomach, Forestomach | Ulcer | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 439	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55025

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|-------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 440	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55026

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3,4,5-13+5+6] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Adenoma TGLs = 2-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 441	TMT: 5	SEX: Male	DAY ON TEST: 683
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55027

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

AUTO PRECLUDES DIAG.

- * Eye

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|--------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-12] | Hepatocellular Carcinoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | | Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Minimal |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |
| * Stomach, Glandular | | Necrosis | Mild |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 442	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55028

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 443	TMT: 5	SEX: Male	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55029

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|--|---|--|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-13] | Hepatocellular Carcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 444	TMT: 5	SEX: Male	DAY ON TEST: 394
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55030

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Thymus |
|-------------------------|--------------------------|-----------------|----------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Heart | | Necrosis | Moderate |
| * Kidney | | Infarct | Moderate |
| | | Nephropathy | Minimal |
| | | Thrombosis | Mild |
| * Larynx | | Degeneration | Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-5+12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 445	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55031

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Harderian Gland | | Adenoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Clear Cell Focus | |
| | | Eosinophilic Focus | |
| | | Hepatocellular Carcinoma | |
| | [Basophilic Focus TGLs = 3-12] | | |
| | [Hepatocellular Carcinoma TGLs = 4-13] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Adenoma TGLs = 5-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Metaplasia | Respiratory, Moderate |
| | Olfactory Epi | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 446	TMT: 5	SEX: Male	DAY ON TEST: 729
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55032

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-12] | | |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

ANIMAL NUM: 447	TMT: 5	SEX: Male	DAY ON TEST: 706
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55033

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-------------------|-------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Heart |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Mammary Gland

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mesenteric | | | |

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|--------------------------|
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 7-11] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 8-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5,6-4+6] | | |
| Mesentery | | Necrosis | Mild |
| | Fat | | |
| | [Necrosis TGLs = 10-12] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | | Metaplasia | Respiratory, Moderate |
| * Skin | | Fibrous Histiocytoma | |
| | Subcut Tiss | Inflammation | Chronic Active, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 447	TMT: 5	SEX: Male	DAY ON TEST: 706
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55033

ORGAN AND ACCOUNTABLE SITE STATUS

	[Fibrous Histiocytoma TGLs = 3-14]		
	[Inflammation TGLs = 2-13]		
* Spleen		Hemangiosarcoma	
	[Hemangiosarcoma TGLs = 9-5]		
* Stomach, Forestomach		Ulcer	Moderate

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

ANIMAL NUM: 448	TMT: 5	SEX: Male	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55034

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|-----------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Thymus |
|-------------------------|-----------------|----------|

OBSERVATIONS

- | | | | |
|--------------------------|--|---|--|
| * Bone Marrow | | Hemangiosarcoma | |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 7-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5,6-4+15+6] | | |
| * Lymph Node, Mesenteric | | Hemangiosarcoma | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Skin | Subcut Tiss | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 1-12] | | |
| * Spleen | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 2,3-14+5] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 449	TMT: 5	SEX: Male	DAY ON TEST: 730
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55035

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|--------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|--------------------------|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|---|--|
| * Eye | Cornea | Inflammation | Chronic Active, Minimal |
| * Harderian Gland | [Adenoma TGLs = 1-11] | Adenoma | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,4,3-4+12] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Hyperplasia
Inflammation
Metaplasia | Mild
Minimal
Suppurative, Minimal
Respiratory, Mild |
| | Olfactory Epi | | |
| Tooth | | Malformation | Marked |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 450	TMT: 5	SEX: Male	DAY ON TEST: 382
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55036

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|-------------------|-------------|------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Heart |
| * Islets, Pancreatic | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
|-------------------------|--------------------------|---------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Kidney | * Lymph Node, Mesenteric | * Pituitary Gland |
| * Prostate | * Spleen | * Stomach, Glandular | |

INSUFFICIENT TISSUE

- | | | |
|----------|-------------------|----------|
| * Larynx | * Preputial Gland | * Thymus |
|----------|-------------------|----------|

OBSERVATIONS

- | | | | |
|---------|--|--------------------------------|-------------------|
| * Liver | | Tension Lipidosis | Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4+13] | | |
| Pleura | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-12] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 601	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54887

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 4-5]
[Hepatocellular Carcinoma TGLs = 3-12] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,5-4+6]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Marked
Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 602	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54888

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 1,2-12+14] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 603	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54889

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|---------------------------|-----------------|
| * Lymph Node, Mediastinal | * Mammary Gland |
|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 4-6] | | |
| * Testes | | Hyperplasia | Minimal |
| | Interstit Cell | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 604	TMT: 7	SEX: Male	DAY ON TEST: 618
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54890

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Heart | Pericardium | Inflammation | Chronic, Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 605	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54891

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|--------------------------|
| * Adrenal Cortex | Subcapsular | Adenoma | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma | Multiple |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,4,3-4+12] | Hyperplasia | Marked |
| | [Proteinosis TGLs = 1-4] | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Moderate |
| | | Metaplasia | Respiratory, Marked |
| * Seminal Vesicle | | Inflammation | Chronic Active, Moderate |
| | [Inflammation TGLs = 5-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 606	TMT: 7	SEX: Male	DAY ON TEST: 698
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54892

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|---------------------|
| * Kidney | | Infarct
Nephropathy | Mild
Minimal |
| | [Infarct TGLs = 5-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+4+13] | | |
| * Nose | | Turbinate | Marked |
| | | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | | Germinal Epith | Moderate |
| | | Degeneration | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 607	TMT: 7	SEX: Male	DAY ON TEST: 554
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54893

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Multiple
Marked
Moderate
Chronic Active, Mild
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+12] | | |
| * Nose | Turbinate
Olfactory Epi

Olfactory Epi | Atrophy
Hyperplasia
Inflammation
Metaplasia | Moderate
Mild
Suppurative, Moderate
Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 608	TMT: 7	SEX: Male	DAY ON TEST: 716
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54894

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
|--------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,4-12+13+4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 609	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54895

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
|-------------------------|--------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|---|--------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| * Heart | | Cardiomyopathy | Mild |
| * Islets, Pancreatic | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 610	TMT: 7	SEX: Male	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54896

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|---------------------------|-----------------|---------------------|
| * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|---------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|----------------------------|------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Hemangiosarcoma | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 611	TMT: 7	SEX: Male	DAY ON TEST: 706
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54897

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|--------------------------|----------------------|----------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Epididymis | * Esophagus | * Harderian Gland | * Islets, Pancreatic |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | | |
|-------------------------|---------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland | * Parathyroid Gland |
|-------------------------|---------------------------|-----------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Bone Marrow | * Eye | * Gallbladder | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Spleen | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|--------------------------|
| * Heart | | Hemorrhage | Moderate |
| * Kidney | | Infarct | Mild |
| | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+12] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | | Degeneration | Mild |
| | Germinal Epith | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 612	TMT: 7	SEX: Male	DAY ON TEST: 731
DOSE: 5.0 mg/m3		DISP: Terminal Sacrifice	HISTO: 54898

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Thyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|--|---------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 4-6]
[Hepatocellular Carcinoma TGLs = 1-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma
Hepatocellular Carcinoma | Multiple
Metastatic (Liver) |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4]
[Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 613	TMT: 7	SEX: Male	DAY ON TEST: 586
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54899

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Bronchiole
Alveolar Epith | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Moderate
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+6]
[Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 614	TMT: 7	SEX: Male	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54900

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|-------------------------|-----------------|---------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland | * Thymus |
|-------------------------|-----------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 615	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54901

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|-------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Pituitary Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 5-5] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 616	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54902

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Medulla | * Bone | * Brain | * Epididymis |
| * Esophagus | * Eye | * Harderian Gland | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|-------------------------|---------------------------|-----------------|
| * Gallbladder | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
|---------------|-------------------------|---------------------------|-----------------|

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Bone Marrow | | Thrombosis | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatodiaphragmatic Nodule TGLs = 1-6] | Hepatodiaphragmatic Nodule | |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 3-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5,6-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 617	TMT: 7	SEX: Male	DAY ON TEST: 425
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54903

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------|--------------------------|-----------------|
| * Adrenal Medulla | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,4,5,6,7,8-6+12+4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 618	TMT: 7	SEX: Male	DAY ON TEST: 537
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54904

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|---|-------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 619	TMT: 7	SEX: Male	DAY ON TEST: 575
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54905

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-----------------|-------------------|----------|
| * Mammary Gland | * Pituitary Gland | * Thymus |
|-----------------|-------------------|----------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 620	TMT: 7	SEX: Male	DAY ON TEST: 708
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54906

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|---------------------------|----------------------|---------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Harderian Gland |
| * Heart | * Intestine Large, Rectum | * Islets, Pancreatic | * Kidney |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|-----------------------------|--------------------------|----------------------------|--------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Spleen |
| * Stomach, Glandular | | | |

OBSERVATIONS

- | | | | |
|------------------------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 5-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,4-12+4+6] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Stomach, Forestomach | | Inflammation | Chronic Active, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 621	TMT: 7	SEX: Male	DAY ON TEST: 476
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54907

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|--------------------------|---------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|-----------------|---------------------|
| * Lymph Node, Mesenteric | * Mammary Gland | * Parathyroid Gland |
|--------------------------|-----------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------|-----------------------------|--------------------------|----------------------------|
| * Gallbladder | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
|---------------|-----------------------------|--------------------------|----------------------------|

OBSERVATIONS

- | | | | |
|-------------------------|---|--------------------------------|-----------------------|
| Coagulating Gland | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Heart | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5-5] | | |
| * Kidney | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 6-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Minimal |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4+6] | | |
| * Lymph Node, Bronchial | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Pancreas | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| Skeletal Muscle | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	621	TMT:	7	SEX:	Male	DAY ON TEST:	476
		DOSE:	5.0 mg/m3	DISP:	Natural Death	HISTO:	54907

ORGAN AND ACCOUNTABLE SITE STATUS

[Alveolar/Bronchiolar Carcinoma TGLs = 2,7-12+13]

* Thymus

Alveolar/Bronchiolar Carcinoma

Metastatic (Lung)

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 622	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54908

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|----------|-----------------------------------|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Cholangiocarcinoma TGLs = 4-6] | Cholangiocarcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Cholangiocarcinoma
Hyperplasia
Hyperplasia
Proteinosis | Metastatic (Liver)
Marked
Marked
Marked |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Mild
Respiratory, Moderate |
| | Olfactory Epi | | |
| * Skin | [Inflammation TGLs = 1,2-13+12] | Inflammation | Chronic Active, Marked |

PRIMARY CAUSE OF DEATH - Lung Proteinosis

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 623	TMT: 7	SEX: Male	DAY ON TEST: 691
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54909

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|------------------------|-------------------------|---------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|--------------------------|-----------------|
| * Lymph Node, Mandibular | * Mammary Gland |
|--------------------------|-----------------|

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|--------------------------|-----------------------------|--------------------------|
| * Eye | * Intestine Large, Cecum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Mesenteric | | |

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | [Hepatodiaphragmatic Nodule TGLs = 3-6] | Hepatodiaphragmatic Nodule | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 624	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54910

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|---------------|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------------------|---|--------------------------------|---------------------|
| * Islets, Pancreatic | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 625	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54911

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Harderian Gland | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 626	TMT: 7	SEX: Male	DAY ON TEST: 571
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54912

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | Peripheral Nerve | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | Spinal Cord | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|---------------|--------------------------|-----------------|
| * Gallbladder | * Lymph Node, Mandibular | * Mammary Gland |
|---------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | [Basophilic Focus TGLs = 4-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Hyperplasia TGLs = 3-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Hyperplasia | Mild |
| | Olfactory Epi | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 627	TMT: 7	SEX: Male	DAY ON TEST: 681
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54913

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|---|--------------------------------|--------------------------|
| * Eye | Cataract | Mild |
| [Cataract TGLs = 4-11] | | |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Hepatocellular Adenoma | |
| [Hepatocellular Adenoma TGLs = 5-14] | | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| Alveolar Epith | Hyperplasia | Marked |
| Bronchiole | Hyperplasia | Marked |
| | Inflammation | Chronic Active, Moderate |
| | Proteinosis | Marked |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+13] | | |
| [Proteinosis TGLs = 3-4] | | |
| * Nose | Atrophy | Mild |
| Turbinate | Inflammation | Suppurative, Minimal |
| Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 628	TMT: 7	SEX: Male	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54914

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|---------------|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Basophilic Focus TGLs = 1-5] | Basophilic Focus | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4,5-4]
[Proteinosis TGLs = 6-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 629	TMT: 7	SEX: Male	DAY ON TEST: 617
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54915

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-----------------|---------------------|----------|
| * Mammary Gland | * Parathyroid Gland | * Thymus |
|-----------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|-------------------------|---|--------------------------------|-----------------------|
| * Heart | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+13+4] | | |
| * Lymph Node, Bronchial | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Marked |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Moderate |
| | | Inflammation | Chronic Active, Mild |
| | [Hyperplasia TGLs = 5-9] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 630	TMT: 7	SEX: Male	DAY ON TEST: 691
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54916

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|---------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-13+12] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 631	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54917

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocellular Carcinoma | |
| * Lung | [Hepatocellular Carcinoma TGLs = 3-12+13] | | |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| * Nose | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| | Turbinates | Atrophy | Marked |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 632	TMT: 7	SEX: Male	DAY ON TEST: 649
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54918

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Stomach, Glandular | * Testes | * Thyroid Gland | Tissue NOS |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

OBSERVATIONS

- | | | | |
|------------------------|--|--------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 3-11] | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 4-13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | | Turbinate | Mild |
| | | Olfactory Epi | Suppurative, Moderate |
| | | | Respiratory, Moderate |
| * Pancreas | | Atrophy | Minimal |
| * Spleen | | Hemangiosarcoma | |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	632	TMT:	7	SEX:	Male	DAY ON TEST:	649
		DOSE:	5.0 mg/m3	DISP:	Moribund Sacrifice	HISTO:	54918

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 633	TMT: 7	SEX: Male	DAY ON TEST: 660
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54919

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Parathyroid Gland | | | |

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------------|-----------------------|
| * Bone Marrow | | Lymphoma Malignant | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| | [Eosinophilic Focus TGLs = 5-6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 2-13] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-12] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Moderate |
| | | Inflammation | Chronic Active, Mild |
| | [Inflammation TGLs = 6-9] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	633	TMT:	7	SEX:	Male	DAY ON TEST:	660
		DOSE:	5.0 mg/m3	DISP:	Moribund Sacrifice	HISTO:	54919

ORGAN AND ACCOUNTABLE SITE STATUS

* Testes	Germinal Epith	Degeneration	Mild
----------	----------------	--------------	------

PRIMARY CAUSE OF DEATH	- Lymph Node, Mesenteric	Lymphoma Malignant
------------------------	--------------------------	--------------------

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 634	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54920

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-----------------|--------|----------|
| * Mammary Gland | * Skin | * Thymus |
|-----------------|--------|----------|

OBSERVATIONS

- | | | | |
|-----------|---|--|--|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 4-12]
[Hepatocellular Carcinoma TGLs = 6-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4]
[Proteinosis TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 5-14] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Marked
Respiratory, Marked |
| | Olfactory Epi | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 635	TMT: 7	SEX: Male	DAY ON TEST: 593
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54921

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+13+4] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

ANIMAL NUM: 636	TMT: 7	SEX: Male	DAY ON TEST: 730
DOSE: 5.0 mg/m3		DISP: Terminal Sacrifice	HISTO: 54922

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | | | |

MISSING

- | | | | |
|-------------------------|-----------------|----------|-------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Thymus | * Urinary Bladder |
|-------------------------|-----------------|----------|-------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Angiectasis | Moderate |
| | | Hepatocellular Carcinoma | |
| | [Angiectasis TGLs = 3-5] | | |
| | [Hepatocellular Carcinoma TGLs = 2-12+13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Metastatic (Liver) |
| | | Hepatocellular Carcinoma | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Inflammation | Chronic Active, Mild |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | Germinal Epith | Degeneration | Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 637 TMT: 7 DOSE: 5.0 mg/m3

SEX: Male DISP: Terminal Sacrifice

DAY ON TEST: 731 HISTO: 54923

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Parathyroid Gland
- * Salivary Glands
- * Stomach, Forestomach
- * Thyroid Gland
- * Adrenal Medulla
- * Epididymis
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pituitary Gland
- * Seminal Vesicle
- * Stomach, Glandular
- * Trachea
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Lymph Node, Mesenteric
- * Preputial Gland
- * Skin
- * Testes
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Pancreas
- * Prostate
- * Spleen
- * Thymus

MISSING

- * Mammary Gland

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Larynx Metaplasia Squamous, Minimal
- * Lung Alveolar/Bronchiolar Carcinoma Multiple
- Alveolar Epith Hyperplasia Marked
- Bronchiole Hyperplasia Marked
- Proteinosis TGLs = 1-4] Proteinosis Marked
- * Nose Turbinate Atrophy Marked
- Inflammation Suppurative, Moderate
- Olfactory Epi Metaplasia Respiratory, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 638	TMT: 7	SEX: Male	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54924

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------------|---------------------|
| * Epididymis | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Large, Cecum | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Kidney | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | | Infarct | Moderate |
| | | Nephropathy | Minimal |
| | [Infarct TGLs = 3-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Testes | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | Germinal Epith | Degeneration | Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 639	TMT: 7	SEX: Male	DAY ON TEST: 227
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54925

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------|--------------------------|---------------------------|----------------------|
| * Bone | * Brain | * Epididymis | * Esophagus |
| * Eye | * Intestine Large, Colon | * Intestine Large, Rectum | * Islets, Pancreatic |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Thymus | * Thyroid Gland |
| * Trachea | | | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-----------------------------|------------------------------------|---|-------------------------|
| * Adrenal Cortex | | Lymphoma Malignant | |
| * Adrenal Medulla | | Lymphoma Malignant | |
| * Bone Marrow | | Lymphoma Malignant | |
| * Gallbladder | | Lymphoma Malignant | |
| * Harderian Gland | | Lymphoma Malignant | |
| * Heart | | Lymphoma Malignant | |
| * Intestine Large, Cecum | | Lymphoma Malignant | |
| * Intestine Small, Duodenum | | Lymphoma Malignant | |
| * Intestine Small, Ileum | | Lymphoma Malignant | |
| * Intestine Small, Jejunum | | Lymphoma Malignant | |
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-12] | | |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Minimal
Mild
Mild |
| Lymph Node | Lumbar
Deep Cervical | Lymphoma Malignant
Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 4-6] | | |
| | [Lymphoma Malignant TGLs = 5-13] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	639	TMT:	7	SEX:	Male	DAY ON TEST:	227
		DOSE:	5.0 mg/m3	DISP:	Moribund Sacrifice	HISTO:	54925

ORGAN AND ACCOUNTABLE SITE STATUS

* Lymph Node, Mandibular [Lymphoma Malignant TGLs = 7-8]	Lymphoma Malignant	
* Lymph Node, Mediastinal [Lymphoma Malignant TGLs = 1-3]	Lymphoma Malignant	
* Lymph Node, Mesenteric [Lymphoma Malignant TGLs = 6-7]	Lymphoma Malignant	
* Nose Turbinate Olfactory Epi	Atrophy Hyperplasia Inflammation Lymphoma Malignant Metaplasia	Minimal Minimal Suppurative, Mild
	Olfactory Epi	Respiratory, Mild
* Pancreas	Lymphoma Malignant	
* Skin Subcut Tiss	Lymphoma Malignant	
* Spleen [Lymphoma Malignant TGLs = 2-5]	Lymphoma Malignant	
* Stomach, Forestomach	Lymphoma Malignant	
* Stomach, Glandular	Lymphoma Malignant	
* Testes	Lymphoma Malignant	
* Urinary Bladder	Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Liver Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 640	TMT: 7	SEX: Male	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54926

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Testes | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Mammary Gland

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | Renal Tubule | Hyperplasia
Nephropathy | Mild
Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Necrosis TGLs = 1-5] | Necrosis | Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Multiple
Marked
Marked
Chronic Active, Mild
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Mild
Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 641	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54927

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-----------------|---------------------|
| * Mammary Gland | * Parathyroid Gland |
|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5-4] | | |
| | [Hyperplasia TGLs = 3,4-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Spleen | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 6-5] | | |
| * Testes | Germinal Epith | Degeneration | Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 642	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54928

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|-----------------|
| * Lymph Node, Bronchial | * Mammary Gland |
|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 5-11] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Carcinoma TGLs = 1,2-12+14] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 643	TMT: 7	SEX: Male	DAY ON TEST: 635
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54929

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------|-------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Heart |
| * Intestine Large, Rectum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mediastinal |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|-------------------------|--------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Parathyroid Gland |
| * Thymus | | | |

AUTO PRECLUDES DIAG.

- | | | | |
|-----------------------------|--------------------------|----------------------------|--------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mesenteric |

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|------------------------|
| * Harderian Gland | | Adenoma | |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Minimal |
| | | Inflammation | Chronic Active, Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12] | | |
| | [Inflammation TGLs = 3-4] | | |
| * Nose | | Atrophy | Mild |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 643 TMT: 7
DOSE: 5.0 mg/m3

SEX: Male
DISP: Natural Death

DAY ON TEST: 635
HISTO: 54929

ORGAN AND ACCOUNTABLE SITE STATUS

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 644	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54930

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|--------------------------|-----------------|
| * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
|-------------------------|--------------------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 645	TMT: 7	SEX: Male	DAY ON TEST: 729
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54931

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Testes |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------|-------------------------|-----------------|
| * Adrenal Medulla | * Lymph Node, Bronchial | * Mammary Gland |
|-------------------|-------------------------|-----------------|

OBSERVATIONS

- | | | | |
|-------------------|---|---|--|
| * Harderian Gland | | Hyperplasia | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Marked
Marked
Chronic Active, Mild
Marked |
| | [Inflammation TGLs = 2-4]
[Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Moderate |
| | Olfactory Epi | | |
| Tooth | | Malformation | Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 646	TMT: 7	SEX: Male	DAY ON TEST: 730
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54932

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Epididymis | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Pancreas | * Pituitary Gland | * Preputial Gland | * Prostate |
| * Salivary Glands | * Seminal Vesicle | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Testes | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | |
|-------------------------|-----------------|---------------------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|--------------------------|
| * Bone Marrow | | Angiectasis | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 2-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Respirat Epith | Metaplasia | Squamous, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Urinary Bladder | | Hemorrhage | Moderate |
| | [Hemorrhage TGLs = 3-9] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 647	TMT: 7	SEX: Male	DAY ON TEST: 712
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54933

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Pancreas | * Pituitary Gland |
| * Preputial Gland | * Prostate | * Salivary Glands | * Seminal Vesicle |
| * Spleen | * Thyroid Gland | * Trachea | |

MISSING

- | | | | |
|-------------------------|-----------------|---------------------|----------|
| * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland | * Thymus |
|-------------------------|-----------------|---------------------|----------|

AUTO PRECLUDES DIAG.

- * Gallbladder

OBSERVATIONS

- | | | | |
|---------------------------|---|---|--|
| * Kidney | Arteriole | Inflammation
Nephropathy | Chronic Active, Moderate
Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 6-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5-4]
[Proteinosis TGLs = 3-4] | | |
| * Lymph Node, Mediastinal | [Hyperplasia TGLs = 2-3] | Hyperplasia | Lymphoid, Mild |
| * Lymph Node, Mesenteric | Arteriole | Inflammation | Chronic Active, Marked |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Marked |
| * Skin | Olfactory Epi | Inflammation | Chronic Active, Marked |
| | [Inflammation TGLs = 7-6] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 647	TMT: 7	SEX: Male	DAY ON TEST: 712
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54933

ORGAN AND ACCOUNTABLE SITE STATUS

* Stomach, Forestomach		Hyperplasia	Squamous, Moderate
* Stomach, Glandular		Ulcer	Moderate
* Testes	Germinal Epith	Degeneration	Moderate
* Urinary Bladder	Arteriole	Inflammation	Chronic Active, Moderate

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 648	TMT: 7	SEX: Male	DAY ON TEST: 586
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54934

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|---------------|-----------------|
| * Gallbladder | * Mammary Gland |
|---------------|-----------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatodiaphragmatic Nodule TGLs = 4-6] | Hepatodiaphragmatic Nodule | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | Proteinosis | Marked |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Inflammation | Suppurative, Moderate |
| | | Metaplasia | Respiratory, Mild |
| Penis | | Inflammation | Acute, Mild |
| | [Inflammation TGLs = 5-13] | | |
| * Testes | Germinal Epith | Degeneration | Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 649	TMT: 7	SEX: Male	DAY ON TEST: 562
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54935

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Pancreas | * Pituitary Gland | * Preputial Gland |
| * Prostate | * Salivary Glands | * Seminal Vesicle | * Skin |
| * Spleen | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | | | |

MISSING

- | | | | |
|---------------|-------------------------|-----------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|---------------|-------------------------|-----------------|---------------------|

INSUFFICIENT TISSUE

- * Urinary Bladder

OBSERVATIONS

- | | | | |
|------------------------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Stomach, Forestomach | | Ulcer | Moderate |
| * Testes | Germinal Epith | Degeneration | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 650	TMT: 7	SEX: Male	DAY ON TEST: 678
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54936

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-------------------------|---------------------------|-----------------|------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Epididymis | * Esophagus | * Harderian Gland |
| * Heart | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Preputial Gland | * Prostate | * Salivary Glands |
| * Seminal Vesicle | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Testes | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | | |
|--------------------------|--------------------------|-----------------|----------|
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Thymus |
|--------------------------|--------------------------|-----------------|----------|

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Moderate
Moderate
Chronic Active, Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	101	TMT:	2	SEX:	Female	DAY ON TEST:	732
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54837

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|----------|---|------------------------------|------------------|
| * Kidney | Renal Tubule | Hyperplasia | Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 2-6] | Hepatocellular Adenoma | |
| * Lung | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | Alveolar/Bronchiolar Adenoma | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	102	TMT:	2	SEX:	Female	DAY ON TEST:	733
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54838

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|------------------|-------------------------|---------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Parathyroid Gland |
|------------------|-------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|-------------|-------------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	103	TMT:	2	SEX:	Female	DAY ON TEST:	383
		DOSE:	control	DISP:	Natural Death	HISTO:	54839

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------|------------------------|---------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Gallbladder |
| * Heart | * Islets, Pancreatic | * Kidney | * Larynx |
| * Lymph Node, Mandibular | * Mammary Gland | * Nose | * Pancreas |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- | | | | |
|--------------------------|---------------------------|-------------------------|---------------------|
| * Intestine Large, Cecum | * Intestine Large, Rectum | * Lymph Node, Bronchial | * Parathyroid Gland |
|--------------------------|---------------------------|-------------------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|--------------------------|-----------------------------|
| * Eye | * Harderian Gland | * Intestine Large, Colon | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lung | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Ovary | * Pituitary Gland | * Spleen |
| * Stomach, Glandular | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | |
|--------------------------|----------|------|
| * Liver | Necrosis | Mild |
| Mesentery | Necrosis | Mild |
| [Necrosis TGLs = 1-12] | | |

PRIMARY CAUSE OF DEATH - UNCERTAIN

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 104 TMT: 2 DOSE: control

SEX: Female DISP: Moribund Sacrifice

DAY ON TEST: 649 HISTO: 54840

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Small, Duodenum
- * Larynx
- * Nose
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Ovary
- * Skin
- * Thymus
- * Uterus
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mediastinal
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Brain
- * Gallbladder
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- * Adrenal Cortex Hyperplasia Mild
- * Heart Capillary Hyperplasia Moderate
[Hyperplasia TGLs = 2-5]
- * Kidney Nephropathy Mild
- * Liver Hepatocellular Carcinoma
[Hepatocellular Carcinoma TGLs = 3-14]
- * Lung Hepatocellular Carcinoma Metastatic (Liver)
- * Mammary Gland Carcinoma
[Carcinoma TGLs = 1-12]
- * Pituitary Gland Pars Distalis Adenoma

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 105	TMT: 2	SEX: Female	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54841

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | |
|-----------|---------------------------------------|----------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 2-5] | |
| Mesentery | Fat | Mild |
| | [Necrosis TGLs = 4-6] | |
| * Skin | Inflammation | Chronic Active, Mild |
| | [Inflammation TGLs = 1-12] | |
| * Spleen | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 3-5] | |
| * Uterus | Endometrium | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 106	TMT: 2	SEX: Female	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54842

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | |
|----------|---|------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-6] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | |
| * Uterus | Endometrium | Cystic, Moderate |
| | Hyperplasia | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 107	TMT: 2	SEX: Female	DAY ON TEST: 732
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54843

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lung |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Nose | * Pancreas | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|---------------------------|---------------------|
| * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|------------------------|--------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Clear Cell Focus | |
| | | Eosinophilic Focus | |
| | | Hepatocellular Adenoma | Multiple |
| | | Lymphoma Malignant | |
| | [Hepatocellular Adenoma TGLs = 1,2-5] | | |
| * Ovary | | Cyst | Mild |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Minimal |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-5] | | |
| * Thymus | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 108	TMT: 2	SEX: Female	DAY ON TEST: 697
	DOSE: control	DISP: Natural Death	HISTO: 54844

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|-------------------|-------------------|-------------|
| * Bone | * Brain | * Clitoral Gland | * Esophagus |
| * Islets, Pancreatic | * Larynx | * Mammary Gland | * Nose |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | |

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |

OBSERVATIONS

- | | | |
|--|--------------------|------|
| * Adrenal Cortex | Lymphoma Malignant | |
| * Adrenal Medulla | Lymphoma Malignant | |
| * Bone Marrow | Lymphoma Malignant | |
| * Harderian Gland | Adenoma | |
| * Heart | Lymphoma Malignant | |
| * Kidney | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 6-6] | | |
| * Liver | Lymphoma Malignant | Mild |
| [Lymphoma Malignant TGLs = 2,4-12+5+6] | Necrosis | |
| [Necrosis TGLs = 3-13] | | |
| * Lung | Lymphoma Malignant | |
| Lymph Node | Renal | |
| | Lumbar | |
| [Lymphoma Malignant TGLs = 7-13] | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 8-14] | Lymphoma Malignant | |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| * Ovary | Cyst | Mild |
| * Pancreas | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	108	TMT:	2	SEX:	Female	DAY ON TEST:	697
		DOSE:	control	DISP:	Natural Death	HISTO:	54844

ORGAN AND ACCOUNTABLE SITE STATUS

* Spleen	Lymphoma Malignant	
[Lymphoma Malignant TGLs = 5-12]		
* Stomach, Forestomach	Ulcer	Minimal
[Ulcer TGLs = 9-14]		
* Thymus	Lymphoma Malignant	
* Urinary Bladder	Lymphoma Malignant	
* Uterus	Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Liver Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 109	TMT: 2	SEX: Female	DAY ON TEST: 499
	DOSE: control	DISP: Natural Death	HISTO: 54845

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|--------------------------|---------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Islets, Pancreatic | * Larynx | * Lung |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|---------------|---------------------|
| * Gallbladder | * Parathyroid Gland |
|---------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | |
|-----------------------------|--------------------------|----------------------------|
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
|-----------------------------|--------------------------|----------------------------|

OBSERVATIONS

- | | | |
|-------------------|---|------------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Adenoma | Multiple |
| | Hepatocellular Carcinoma | |
| | Necrosis | Moderate |
| | [Hepatocellular Adenoma TGLs = 1,4-12+15] | |
| | [Hepatocellular Carcinoma TGLs = 3-14] | |
| * Pituitary Gland | Pars Distalis | Mild |
| * Uterus | Endometrium | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 110	TMT: 2	SEX: Female	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54846

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Mammary Gland |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|---------------|-------------------------|
| * Gallbladder | * Lymph Node, Bronchial |
|---------------|-------------------------|

OBSERVATIONS

- | | | |
|---------------------------|---------------------------------------|----------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Adenoma | |
| | Tension Lipidosis | Mild |
| | [Hepatocellular Adenoma TGLs = 2-5] | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| * Pituitary Gland | Pars Distalis | Hyperplasia |
| * Spleen | Lymphoma Malignant | Mild |
| | [Lymphoma Malignant TGLs = 3-5] | |
| * Uterus | Endometrium | Hyperplasia |
| | [Hyperplasia TGLs = 1-9] | Cystic, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 111 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 732
HISTO: 54847

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Mammary Gland
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Nose
- * Skin
- * Thymus

MISSING

- * Gallbladder
- * Lymph Node, Bronchial
- * Parathyroid Gland

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- * Liver [Vacuolization Cytoplasmic TGLs = 1-5] Vacuolization Cytoplasmic Minimal
- Mesentery Fat [Necrosis TGLs = 3-6] Necrosis Mild
- * Ovary Cyst Mild
- * Uterus [Inflammation TGLs = 2-9] Inflammation Chronic Active, Marked

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 112	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54848

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|-------------|-------------|--------------|
| * Kidney | | Nephropathy | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 113 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 731
HISTO: 54849

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Ovary
- * Salivary Glands
- * Thymus
- * Uterus
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pancreas
- * Skin
- * Thyroid Gland
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Mammary Gland
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Hemangiosarcoma
Hepatocellular Adenoma
[Hemangiosarcoma TGLs = 1-17]
[Hepatocellular Adenoma TGLs = 2-5]
- * Lymph Node, Bronchial Lymphoma Malignant
- * Lymph Node, Mesenteric Lymphoma Malignant
[Lymphoma Malignant TGLs = 4-6+7]
- * Spleen Lymphoma Malignant
[Lymphoma Malignant TGLs = 3-5]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 114	TMT: 2	SEX: Female	DAY ON TEST: 599
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54850

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lung |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------|---------------------------|-------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Necrosis | Moderate |
| | [Necrosis TGLs = 2-5] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-6] | | |
| * Ovary | | Thrombosis | Marked |
| | [Thrombosis TGLs = 1-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Ovary Thrombosis

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	115	TMT:	2	SEX:	Female	DAY ON TEST:	733
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54851

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Liver |
| * Lung | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Pancreas | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|---------------------------|---------------------|
| * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---------------|-------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Ovary | | Cyst | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 116	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54852

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-5] | | |
| * Lung | Alveolar Epith | Hyperplasia | Minimal |
| Mesentery | Fat | Hemorrhage | Mild |
| | Fat | Necrosis | Mild |
| | [Hemorrhage TGLs = 4-12] | | |
| | [Necrosis TGLs = 3-6] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| | [Hyperplasia TGLs = 2-9] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 117	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54853

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone Marrow | * Brain |
| * Esophagus | * Eye | * Gallbladder | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Nose | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Clitoral Gland

INSUFFICIENT TISSUE

- * Ovary

OBSERVATIONS

- | | | | |
|-----------|---|--------------------------|--------------------|
| * Bone | | Hyperostosis | Minimal |
| | [Hyperostosis TGLs = 1-12] | | |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | | Hepatocellular Carcinoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 3,7-5+14] | | |
| | [Hepatocellular Carcinoma TGLs = 4,5-13+15] | | |
| * Lung | | Hepatocellular Carcinoma | Metastatic (Liver) |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 2-14] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |
| | [Hyperplasia TGLs = 6-9] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 118 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 732 HISTO: 54854

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Brain
* Clitoral Gland * Esophagus * Eye * Gallbladder
* Harderian Gland * Heart * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum
* Islets, Pancreatic * Larynx * Lung * Lymph Node, Bronchial
* Lymph Node, Mesenteric * Mammary Gland * Nose * Ovary
* Pancreas * Salivary Glands * Skin * Stomach, Forestomach
* Stomach, Glandular * Thymus * Thyroid Gland * Trachea
* Urinary Bladder * Uterus

MISSING

- * Parathyroid Gland * Pituitary Gland

OBSERVATIONS

- * Bone Marrow Mast Cell Tumor Malignant Metastatic (Uncertain Primary Site)
* Kidney Nephropathy Minimal
* Liver Hepatocellular Adenoma Hepatocellular Carcinoma Mast Cell Tumor Malignant Multiple
[Hepatocellular Adenoma TGLs = 2,3,5-14+5] Metastatic (Uncertain Primary Site)
[Hepatocellular Carcinoma TGLs = 6-12]
* Lymph Node, Mandibular Mast Cell Tumor Malignant Metastatic (Uncertain Primary Site)
* Lymph Node, Mediastinal Mast Cell Tumor Malignant Metastatic (Uncertain Primary Site)
Mesentery Fat Necrosis TGLs = 1-6 Mild
* Spleen Mast Cell Tumor Malignant Metastatic (Uncertain Primary Site)

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 119 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 54855

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Nose
- * Pituitary Gland
- * Thyroid Gland
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Ovary
- * Skin
- * Trachea
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Pancreas
- * Stomach, Forestomach
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Mammary Gland
- * Parathyroid Gland
- * Stomach, Glandular

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Hepatocellular Adenoma
[Hepatocellular Adenoma TGLs = 2-6]
- * Lung Lymphoma Malignant
- Lymph Node Renal Ectasia Moderate
[Ectasia TGLs = 3-12]
- * Lymph Node, Mandibular Lymphoma Malignant
- * Lymph Node, Mediastinal Lymphoma Malignant
- * Lymph Node, Mesenteric Lymphoma Malignant
- * Salivary Glands Lymphoma Malignant
- * Spleen Lymphoma Malignant
[Lymphoma Malignant TGLs = 1-5]
- * Thymus Lymphoma Malignant
- * Uterus Endometrium Hyperplasia Cystic, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 120 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 732
HISTO: 54856

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Nose
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Ovary
- * Skin
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mesenteric
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Larynx
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Bronchial
- * Parathyroid Gland

OBSERVATIONS

- * Liver [Hepatocellular Carcinoma TGLs = 3-5] Hepatocellular Carcinoma
- * Lung [Alveolar/Bronchiolar Adenoma TGLs = 1-4] Alveolar/Bronchiolar Adenoma
- * Uterus Endometrium Hyperplasia Cystic, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 122	TMT: 2	SEX: Female	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54858

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lung |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

OBSERVATIONS

- | | | | |
|--------------------------|-----------------------------------|------------------------|------------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-5] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Pituitary Gland | Pars Distalis | Angiectasis | Minimal |
| | [Angiectasis TGLs = 1-9] | | |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 123 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 54859

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Nose
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Ovary
- * Skin
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mesenteric
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Mammary Gland
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Hepatocellular Adenoma Multiple
[Hepatocellular Adenoma TGLs = 2,3-5]
- * Pituitary Gland Pars Distalis Adenoma
[Adenoma TGLs = 1-9]
- * Uterus Endometrium Hyperplasia Cystic, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 124 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 732
HISTO: 54860

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Nose
- * Pituitary Gland
- * Stomach, Forestomach
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mesenteric
- * Pancreas
- * Skin
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lung
- * Mammary Gland
- * Parathyroid Gland
- * Spleen
- * Trachea

MISSING

- * Lymph Node, Bronchial
- * Thymus

OBSERVATIONS

- * Kidney Nephropathy Minimal
- * Liver Hepatocellular Adenoma Multiple
Tension Lipidosis Mild
- [Hepatocellular Adenoma TGLs = 2,3,4-16+17+5]
- Lymph Node Renal Ectasia Moderate
- [Ectasia TGLs = 1-6]
- * Uterus Endometrium Hyperplasia Cystic, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 125	TMT: 2	SEX: Female	DAY ON TEST: 649
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54861

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Larynx | * Liver |
| * Lymph Node, Mandibular | * Nose | * Ovary | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | |
|---|----------------------------------|-------------------|
| * Heart | Cardiomyopathy | Mild |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| [Alveolar/Bronchiolar Carcinoma TGLs = 3-15] | | |
| * Lymph Node, Bronchial | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Lymph Node, Mediastinal | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| [Alveolar/Bronchiolar Carcinoma TGLs = 2-17] | | |
| * Lymph Node, Mesenteric | Sarcoma | Metastatic (Skin) |
| * Mammary Gland | Hyperplasia | Moderate |
| * Pancreas | Sarcoma | Metastatic (Skin) |
| [Sarcoma TGLs = 5-6] | | |
| * Skin | Sarcoma | |
| Subcut Tiss | | |
| [Sarcoma TGLs = 1-12+13] | | |
| * Spleen | Hematopoietic Cell Proliferation | Moderate |
| [Hematopoietic Cell Proliferation TGLs = 4-5] | | |
| * Thymus | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| [Alveolar/Bronchiolar Carcinoma TGLs = 2-17] | | |
| * Uterus | Endometrium | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Sarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 126 TMT: 2
DOSE: control

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 732
HISTO: 54862

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Rectum
- * Larynx
- * Mammary Gland
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Mandibular
- * Nose
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Jejunum
- * Lymph Node, Mediastinal
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pancreas
- * Skin
- * Thymus

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- * Harderian Gland [Adenoma TGLs = 1-11] Adenoma
- * Intestine Small, Ileum Carcinoma
- * Kidney Nephropathy Minimal
- * Liver [Hepatocellular Carcinoma TGLs = 3,4-21+6] Hepatocellular Carcinoma Multiple
- * Lung Hepatocellular Carcinoma Metastatic (Liver)
- Mesentery Fat Necrosis Mild
[Necrosis TGLs = 2-21]
- * Uterus Endometrium Hyperplasia Cystic, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 127 TMT: 2
DOSE: control

SEX: Female
DISP: Moribund Sacrifice

DAY ON TEST: 223
HISTO: 54863

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Nose
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea
- * Adrenal Medulla
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mediastinal
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Lymph Node, Mesenteric
- * Pancreas
- * Skin
- * Thymus
- * Bone Marrow
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lung
- * Mammary Gland
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland

MISSING

- * Clitoral Gland
- * Lymph Node, Bronchial

OBSERVATIONS

- * Kidney [Amyloid Deposition TGLs = 2-6] Amyloid Deposition Marked
- * Uterus Polyp Stromal

PRIMARY CAUSE OF DEATH - Kidney Amyloid Deposition

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 128	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54864

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | |
|-------------------|---|--------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Liver | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-6] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | Hepatocellular Carcinoma | Metastatic (Liver) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | |
| Mesentery | Fat | |
| | [Necrosis TGLs = 5-12] | Mild |
| * Pituitary Gland | Pars Distalis | |
| | [Adenoma TGLs = 2-9] | |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 4-5] | |
| * Uterus | Endometrium | Cystic, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 130	TMT: 2	SEX: Female	DAY ON TEST: 523
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54866

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lung |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- | | | | |
|------------|---|----------------------------------|---|
| * Kidney | Transit Epithe | Carcinoma
Cyst | Marked |
| | [Carcinoma TGLs = 4-6] | | |
| | [Cyst TGLs = 3-12] | | |
| Lymph Node | Lumbar
Renal | Carcinoma
Hyperplasia | Metastatic (Kidney)
Lymphoid, Moderate |
| | [Carcinoma TGLs = 6-6] | | |
| | [Hyperplasia TGLs = 5-13] | | |
| * Spleen | Hematopoietic Cell Proliferation TGLs = 2-5] | Hematopoietic Cell Proliferation | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Hyperplasia TGLs = 1-9] | | |

PRIMARY CAUSE OF DEATH - Kidney Transit Epithe Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 131 TMT: 2
DOSE: control

SEX: Female
DISP: Natural Death

DAY ON TEST: 583
HISTO: 54867

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Ovary
- * Skin
- * Trachea
- * Adrenal Medulla
- * Esophagus
- * Kidney
- * Lymph Node, Mesenteric
- * Pancreas
- * Spleen
- * Urinary Bladder
- * Bone
- * Harderian Gland
- * Larynx
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Forestomach
- * Bone Marrow
- * Heart
- * Liver
- * Nose
- * Salivary Glands
- * Thyroid Gland

MISSING

- * Clitoral Gland
- * Lymph Node, Bronchial
- * Parathyroid Gland
- * Thymus

AUTO PRECLUDES DIAG.

- * Eye
- * Intestine Large, Rectum
- * Stomach, Glandular
- * Gallbladder
- * Intestine Small, Duodenum
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Intestine Large, Colon
- * Intestine Small, Jejunum

OBSERVATIONS

- * Lung [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] Alveolar/Bronchiolar Carcinoma
- * Lymph Node, Mediastinal [Alveolar/Bronchiolar Carcinoma TGLs = 2-3] Alveolar/Bronchiolar Carcinoma Metastatic (Lung)
- * Uterus Endometrium Hyperplasia Cystic, Mild

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 132	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54868

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Lung | * Lymph Node, Mediastinal |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------|------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 3,4,5,6-12+5+6+13] | | |
| | [Hepatocellular Carcinoma TGLs = 7-13] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 2-8] | | |
| * Skin | Subcut Tiss | Neural Crest Tumor | |
| | [Neural Crest Tumor TGLs = 1-14] | | |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 133	TMT: 2	SEX: Female	DAY ON TEST: 698
	DOSE: control	DISP: Natural Death	HISTO: 54869

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-------------------|-------------------|-------------|----------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Islets, Pancreatic |
| * Larynx | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | | |

MISSING

- * Lymph Node, Bronchial

AUTO PRECLUDES DIAG.

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Eye | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | |

OBSERVATIONS

- | | | |
|--|--------------------|----------|
| * Gallbladder | Lymphoma Malignant | |
| * Harderian Gland | Hyperplasia | Moderate |
| * Heart | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 2-13] | | |
| * Kidney | Lymphoma Malignant | |
| * Liver | Lymphoma Malignant | |
| * Lung | Lymphoma Malignant | |
| Lymph Node | Renal | |
| | Lumbar | |
| [Lymphoma Malignant TGLs = 5-6] | | |
| [Lymphoma Malignant TGLs = 6-13] | | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 4-7+14] | | |
| Mesentery | Lymphoma Malignant | |
| | Necrosis | Mild |
| [Lymphoma Malignant Fat TGLs = 7-12] | | |
| [Necrosis TGLs = 7-12] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	133	TMT:	2	SEX:	Female	DAY ON TEST:	698
		DOSE:	control	DISP:	Natural Death	HISTO:	54869

ORGAN AND ACCOUNTABLE SITE STATUS

* Ovary		Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
	[Lymphoma Malignant	TGLs = 3-5]	
* Stomach, Forestomach		Lymphoma Malignant	
	[Lymphoma Malignant	TGLs = 8-9]	
* Thymus		Lymphoma Malignant	
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Marked
		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

ANIMAL NUM: 134	TMT: 2	SEX: Female	DAY ON TEST: 732
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54870

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Mammary Gland | * Nose | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | |

OBSERVATIONS

- | | | | |
|---------------------------|--|--------------------|---------|
| * Gallbladder | | Lymphoma Malignant | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Lymphoma Malignant | |
| * Liver | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 6,7,8,9,10-13+5+15+6] | | |
| * Lung | | Lymphoma Malignant | |
| Lymph Node | Axillary | Lymphoma Malignant | |
| | Renal | Lymphoma Malignant | |
| | Iliac | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-16] | | |
| | [Lymphoma Malignant TGLs = 11-17] | | |
| | [Lymphoma Malignant TGLs = 12-18] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-3] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 13-7] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-16] | | |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 4-8] | | |
| * Pancreas | | Lymphoma Malignant | |
| * Spleen | | Lymphoma Malignant | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	134	TMT:	2	SEX:	Female	DAY ON TEST:	732
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54870

ORGAN AND ACCOUNTABLE SITE STATUS

[Lymphoma Malignant TGLs = 5-5]

* Thymus

Lymphoma Malignant

* Urinary Bladder

Lymphoma Malignant

* Uterus

Endometrium

Hyperplasia

Cystic, Marked

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 135	TMT: 2	SEX: Female	DAY ON TEST: 701
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54871

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|----------------------------|--------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Mammary Gland | * Nose | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | |
|-----------------------------|--|------------------------|
| * Gallbladder | | Lymphoma Malignant |
| * Intestine Small, Duodenum | | Lymphoma Malignant |
| | [Lymphoma Malignant TGLs = 12-17] | |
| * Intestine Small, Ileum | | Lymphoma Malignant |
| | [Lymphoma Malignant TGLs = 13-18] | |
| * Kidney | | Lymphoma Malignant |
| | [Lymphoma Malignant TGLs = 8-6] | |
| * Liver | | Basophilic Focus |
| | | Hepatocellular Adenoma |
| | | Lymphoma Malignant |
| | [Basophilic Focus TGLs = 3-5] | |
| | [Hepatocellular Adenoma TGLs = 2-12] | |
| | [Lymphoma Malignant TGLs = 6,7-5] | |
| * Lung | | Lymphoma Malignant |
| Lymph Node | Renal | Lymphoma Malignant |
| | Lumbar | Lymphoma Malignant |
| | [Lymphoma Malignant TGLs = 9-6] | |
| | [Lymphoma Malignant TGLs = 10-16] | |
| * Lymph Node, Bronchial | | Lymphoma Malignant |
| * Lymph Node, Mandibular | | Lymphoma Malignant |
| * Lymph Node, Mediastinal | | Lymphoma Malignant |
| * Lymph Node, Mesenteric | | Lymphoma Malignant |
| | [Lymphoma Malignant TGLs = 11-15] | |
| * Ovary | | Lymphoma Malignant |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	135	TMT:	2	SEX:	Female	DAY ON TEST:	701
		DOSE:	control	DISP:	Moribund Sacrifice	HISTO:	54871

ORGAN AND ACCOUNTABLE SITE STATUS

* Pituitary Gland	Pars Distalis	Hyperplasia	Mild
* Skin	[Inflammation TGLs = 1-16]	Inflammation	Chronic Active, Moderate
* Spleen	[Lymphoma Malignant TGLs = 4-14] [Necrosis TGLs = 5-5]	Lymphoma Malignant Necrosis	Moderate
* Thymus		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia Lymphoma Malignant	Cystic, Mild

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 136 TMT: 2 DOSE: control

SEX: Female DISP: Moribund Sacrifice

DAY ON TEST: 655 HISTO: 54872

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Bone * Bone Marrow * Brain
* Clitoral Gland * Esophagus * Eye * Gallbladder
* Harderian Gland * Heart * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum
* Islets, Pancreatic * Larynx * Lymph Node, Bronchial * Lymph Node, Mediastinal
* Lymph Node, Mesenteric * Mammary Gland * Nose * Ovary
* Pancreas * Parathyroid Gland * Pituitary Gland * Salivary Glands
* Skin * Spleen * Stomach, Glandular * Thymus
* Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Lymph Node, Mandibular

OBSERVATIONS

- * Adrenal Medulla Hyperplasia Mild
* Kidney Nephropathy Minimal
* Liver Hepatocellular Carcinoma Multiple
Tension Lipidosis Moderate
[Hepatocellular Carcinoma TGLs = 6,7,8,9-15+5+17+18+13]
* Lung Hepatocellular Carcinoma Metastatic (Liver)
[Hepatocellular Carcinoma TGLs = 1,2,3,4,5,11-12+15+6+16+4+17]
Mesentery Fat Necrosis Mild
[Necrosis TGLs = 10-16]
* Stomach, Forestomach Ulcer Minimal
* Uterus Endometrium Hyperplasia Cystic, Moderate

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	137	TMT:	2	SEX:	Female	DAY ON TEST:	731
		DOSE:	control	DISP:	Terminal Sacrifice	HISTO:	54873

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|------------------------|--------------|
| * Kidney | | Nephropathy | Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-5] | | |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 139	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54875

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lung | * Nose | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | | |
|---------------------|-------------------------|--------------------------|-----------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland |
| * Parathyroid Gland | * Thymus | | |

OBSERVATIONS

- | | | |
|---|----------------------------------|----------------------|
| * Harderian Gland | Adenoma | |
| [Adenoma TGLs = 7-11] | Hyperplasia | Mild |
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Nephropathy | Moderate |
| [Nephropathy TGLs = 5-6] | | |
| * Liver | Hematopoietic Cell Proliferation | Marked |
| [Hematopoietic Cell Proliferation TGLs = 4-5] | | |
| Lymph Node Iliac | Ectasia | Moderate |
| [Ectasia TGLs = 6-6] | | |
| * Lymph Node, Mediastinal | Hyperplasia | Lymphoid, Mild |
| [Hyperplasia TGLs = 3-3] | | |
| * Lymph Node, Mesenteric | Hyperplasia | Lymphoid, Mild |
| [Hyperplasia TGLs = 8-7] | | |
| * Ovary | Yolk Sac Carcinoma | |
| [Yolk Sac Carcinoma TGLs = 2-12+13] | | |
| * Pituitary Gland Pars Distalis | Hyperplasia | Mild |
| * Spleen | Hematopoietic Cell Proliferation | Marked |
| [Hematopoietic Cell Proliferation TGLs = 1-5] | | |
| * Uterus | Inflammation | Chronic Active, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 140 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 733 HISTO: 54876

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lung
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Glandular
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Bronchial
- * Mammary Gland
- * Salivary Glands
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mandibular
- * Nose
- * Skin
- * Trachea
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Lymph Node, Mediastinal
- * Ovary
- * Spleen
- * Urinary Bladder

OBSERVATIONS

- * Kidney Nephropathy Minimal
- Lymph Node Iliac Ectasia Moderate
[Ectasia TGLs = 3-6]
- Mesentery Fat Necrosis Mild
[Necrosis TGLs = 2-6]
- * Pancreas Atrophy Minimal
- * Pituitary Gland Pars Distalis Angiectasis Minimal
- * Stomach, Forestomach Squamous Cell Papilloma
- [Squamous Cell Papilloma TGLs = 4-9]
- * Thyroid Gland Follicular Cel Adenoma
- [Adenoma TGLs = 1-3]
- * Uterus Polyp Stromal

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 141	TMT: 2	SEX: Female	DAY ON TEST: 400
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54877

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Lung | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Nose | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-------------------------|----------|
| * Lymph Node, Bronchial | * Thymus |
|-------------------------|----------|

OBSERVATIONS

- | | | | |
|--------------------------|---------------------------|-------------|--------------|
| * Harderian Gland | | Hyperplasia | Mild |
| * Heart | | Thrombosis | Moderate |
| | [Thrombosis TGLs = 2-5] | | |
| * Intestine Large, Cecum | | Hemorrhage | Moderate |
| | [Hemorrhage TGLs = 3-7] | | |
| * Kidney | Renal Tubule | Necrosis | Mild |
| * Liver | | Necrosis | Moderate |
| * Stomach, Glandular | | Necrosis | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Heart Thrombosis

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 142 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 732 HISTO: 54878

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lung
- * Nose
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Ovary
- * Skin
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Lymph Node, Mesenteric
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Bronchial
- * Lymph Node, Mandibular
- * Parathyroid Gland

OBSERVATIONS

- * Kidney
- * Uterus
- Endometrium
- Nephropathy
- Hyperplasia
- Minimal
- Cystic, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 143	TMT: 2	SEX: Female	DAY ON TEST: 732
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54879

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Larynx |
| * Lung | * Mammary Gland | * Nose | * Pancreas |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------|---------------------|---|----------------|
| * Liver | | Lymphoma Malignant
Tension Lipidosis | Minimal |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 1-8] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Thymus | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 144	TMT: 2	SEX: Female	DAY ON TEST: 725
	DOSE: control	DISP: Moribund Sacrifice	HISTO: 54880

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Larynx | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Nose | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | | |
|------------------|-------------------------|-----------------|---------------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Mammary Gland | * Parathyroid Gland |
|------------------|-------------------------|-----------------|---------------------|

OBSERVATIONS

- | | | |
|-------------------|---|--------------|
| * Heart | Mineralization | Minimal |
| * Kidney | Nephropathy | Minimal |
| * Liver | Hemangiosarcoma
Hepatocellular Adenoma
Necrosis | Moderate |
| | [Hemangiosarcoma TGLs = 7-12] | |
| | [Hepatocellular Adenoma TGLs = 8-6] | |
| | [Necrosis TGLs = 6-5] | |
| * Lung | Hemangiosarcoma | |
| Mesentery | Necrosis | Mild |
| | Fat | |
| | [Necrosis TGLs = 4-13] | |
| * Pituitary Gland | Pars Distalis | Moderate |
| * Spleen | Hyperplasia | |
| | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 3,10-5] | |
| * Uterus | Endometrium | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Liver Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 145	TMT: 2	SEX: Female	DAY ON TEST: 732
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54881

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Larynx | * Liver | * Mammary Gland |
| * Nose | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|---|----------------------------------|------------------|
| * Bone Marrow | Lymphoma Malignant | |
| * Kidney | Nephropathy | Minimal |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| [Alveolar/Bronchiolar Carcinoma TGLs = 1-13] | | |
| Lymph Node Iliac | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 6-17] | | |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 4-3] | | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| Mesentery Fat | Necrosis | Mild |
| [Necrosis TGLs = 5-6] | | |
| * Pituitary Gland Pars Distalis | Hyperplasia | Mild |
| * Spleen | Hematopoietic Cell Proliferation | Mild |
| [Hematopoietic Cell Proliferation TGLs = 3-5] | | |
| * Thymus | Lymphoma Malignant | |
| * Uterus Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 146	TMT: 2	SEX: Female	DAY ON TEST: 731
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54882

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Lung |
| * Mammary Gland | * Nose | * Ovary | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | |
|--|--------------------|------------------|
| * Kidney | Nephropathy | Minimal |
| * Liver | Angiectasis | Moderate |
| | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 1,2,3,4,5-5+6+12] | | |
| * Lymph Node, Mandibular | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| Mesentery Fat | Necrosis | Mild |
| [Necrosis TGLs = 6-12] | | |
| * Pancreas | Lymphoma Malignant | |
| * Spleen | Lymphoma Malignant | |
| * Thymus | Lymphoma Malignant | |
| * Uterus Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 147	TMT: 2	SEX: Female	DAY ON TEST: 732
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54883

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Mammary Gland |
| * Nose | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|--------------------------|-------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Pituitary Gland |
|-------------------------|--------------------------|-------------------|

OBSERVATIONS

- | | | |
|---|------------------------|----------------|
| * Kidney | Lymphoma Malignant | |
| * Liver | Hepatocellular Adenoma | Multiple |
| | Lymphoma Malignant | |
| [Hepatocellular Adenoma TGLs = 3,4-5] | | |
| * Lung | Alveolar Epith | Hyperplasia |
| | | Mild |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| * Spleen | Lymphoma Malignant | |
| [Lymphoma Malignant TGLs = 1-5] | | |
| * Thymus | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia |
| [Hyperplasia TGLs = 2-9] | | Cystic, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 148 TMT: 2 DOSE: control

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 731 HISTO: 54884

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Heart
- * Intestine Small, Duodenum
- * Larynx
- * Mammary Gland
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea
- * Adrenal Medulla
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Nose
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lung
- * Ovary
- * Salivary Glands
- * Thymus
- * Bone Marrow
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pancreas
- * Spleen
- * Thyroid Gland

MISSING

- * Clitoral Gland
- * Lymph Node, Mediastinal
- * Gallbladder
- * Lymph Node, Bronchial
- * Lymph Node, Mandibular

OBSERVATIONS

- * Kidney Nephropathy Minimal
- Lymph Node Iliac Ectasia Moderate
- [Ectasia TGLs = 2-6]
- * Skin Subcut Tiss Sarcoma
- [Sarcoma TGLs = 1-16]
- * Uterus Endometrium Hyperplasia Cystic, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 149	TMT: 2	SEX: Female	DAY ON TEST: 733
	DOSE: control	DISP: Terminal Sacrifice	HISTO: 54885

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx | * Liver |
| * Lung | * Lymph Node, Mesenteric | * Mammary Gland | * Nose |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
|-------------------------|--------------------------|---------------------------|

OBSERVATIONS

- | | | | |
|----------|-------------|-------------|--------------|
| * Kidney | | Nephropathy | Minimal |
| * Ovary | | Cyst | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 301 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55137

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Medulla
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Bronchial
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mediastinal
- * Pancreas
- * Skin
- * Thymus
- * Bone Marrow
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea

MISSING

- * Lymph Node, Mandibular

OBSERVATIONS

- | | | | |
|------------------|---|---|----------------------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Brain | | Lymphoma Malignant | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3-12] | Hepatocellular Adenoma | |
| * Lung | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | Alveolar/Bronchiolar Carcinoma
Proteinosis | Multiple
Mild |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 302	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55138

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | Zymbal's Gland | | |

MISSING

- | | |
|------------------|-------------------------|
| * Clitoral Gland | * Lymph Node, Bronchial |
|------------------|-------------------------|

OBSERVATIONS

- | | | | |
|----------|-------------------|-----------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hemangiosarcoma | |
| | [Hemangiosarcoma | TGLs = 1-5] | |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Ovary | | Cyst | Mild |
| * Uterus | Endometrium | Carcinoma | |

ANIMAL NUM: 303 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Moribund Sacrifice

DAY ON TEST: 712
HISTO: 55139

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|---------------------------|----------|
| * Lymph Node, Mediastinal | * Thymus |
|---------------------------|----------|

OBSERVATIONS

- | | | | |
|-------------------|---|------------------------|-------------------|
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 5-11] | | |
| * Kidney | Renal Tubule | Histiocytic Sarcoma | |
| | | Necrosis | Moderate |
| | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Histiocytic Sarcoma | |
| | | Necrosis | Mild |
| | | Tension Lipidosis | Mild |
| | [Hepatocellular Adenoma TGLs = 11-14] | | |
| | [Necrosis TGLs = 6-5] | | |
| * Lung | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Proteinosis TGLs = 4-4] | | |
| Lymph Node | Lumbar | Ectasia | Mild |
| | Renal | Erythrophagocytosis | Mild |
| | [Ectasia TGLs = 10-6] | | |
| | [Erythrophagocytosis TGLs = 9-14] | | |
| Mesentery | | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 8-15] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	303	TMT:	4	SEX:	Female	DAY ON TEST:	712
		DOSE:	1.25 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55139

ORGAN AND ACCOUNTABLE SITE STATUS

* Nose	Turbinate	Atrophy	Minimal
	Olfactory Epi	Hyperplasia	Minimal
	Olfactory Epi	Metaplasia	Respiratory, Mild
* Spleen		Hematopoietic Cell Proliferation	Moderate
	[Hematopoietic Cell Proliferation TGLs = 7-5]		
* Uterus		Angiectasis	Marked
		Hemangiosarcoma	
	[Angiectasis TGLs = 3-9]		
	[Hemangiosarcoma TGLs = 2-12]		

PRIMARY CAUSE OF DEATH - Uterus Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 304	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55140

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|---------------------|----------|
| * Lymph Node, Mandibular | * Parathyroid Gland | * Thymus |
|--------------------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Distalis | Angiectasis | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

ANIMAL NUM: 305	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55141

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | | |

MISSING

- * Urinary Bladder

OBSERVATIONS

- | | | | |
|-----------|---------------------------------------|------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Infiltration Cellular | Histiocyte, Mild |
| | Alveolus | Proteinosis | Mild |
| | [Hyperplasia TGLs = 2-4] | | |
| | [Infiltration Cellular TGLs = 3-4] | | |
| Mesentery | | Necrosis | Moderate |
| | Fat | | |
| | [Necrosis TGLs = 1-6] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Hyperplasia | Lymphoid, Mild |
| | [Hyperplasia TGLs = 5-5] | | |
| * Uterus | | Hyperplasia | Cystic, Marked |
| | Endometrium | | |
| | [Hyperplasia TGLs = 6-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 306	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55142

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|----------------------|
| * Eye | Cornea | Inflammation | Chronic Active, Mild |
| | [Inflammation TGLs = 1-11] | | |
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 3-11] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 4-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12] | | |
| Lymph Node | Renal | Ectasia | Mild |
| | [Ectasia TGLs = 6-6] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 5-9] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 307 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Moribund Sacrifice

DAY ON TEST: 649
HISTO: 55143

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Bronchial
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Ovary
- * Salivary Glands
- * Thymus
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mediastinal
- * Pancreas
- * Skin
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea

OBSERVATIONS

- * Larynx Metaplasia Squamous, Minimal
- * Lung Alveolar/Bronchiolar Carcinoma
Alveolar Epith Hyperplasia Moderate
Bronchiole Hyperplasia Moderate
Proteinosis Moderate
[Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4]
- Lymph Node Pancreatic Lymphoma Malignant
[Lymphoma Malignant TGLs = 5-6]
- * Nose Turbinate Atrophy Mild
Inflammation Suppurative, Minimal
Olfactory Epi Metaplasia Respiratory, Moderate
- * Spleen Hemangiosarcoma
- [Hemangiosarcoma TGLs = 4-5]
- * Uterus Angiectasis Mild
Endometrium Hyperplasia Cystic, Mild
[Angiectasis TGLs = 3-9]

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 308	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55144

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-----------------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| Lymph Node | Renal | Ectasia | Moderate |
| | [Ectasia TGLs = 3-6] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 2-9] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Thyroid Gland | Follicular Cel | Hyperplasia | Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 309	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55145

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Mild |
| | | Hyperplasia | Mild |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 310	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55146

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|---------------|---------------------|
| * Gallbladder | * Parathyroid Gland |
|---------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|------------------------------|---|----------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Mild
Mild |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Intermed | Adenoma | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 311	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55147

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|--|------------------------------|---|-------------------------------|
| * Intestine Small, Jejunum
[Carcinoma TGLs = 2-6] | | Carcinoma | |
| * Kidney | | Infarct
Nephropathy | Moderate
Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Minimal |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| * Uterus
[Angiectasis TGLs = 1-9] | Olfactory Epi | Metaplasia
Angiectasis | Respiratory, Mild
Moderate |

ANIMAL NUM: 312	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55148

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|---------------------------|--|------------------------------|----------------------|
| * Larynx | | Degeneration | Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-12] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Olfactory Epi | Hyperplasia | Mild |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Spleen | | Lymphoma Malignant | |
| * Thymus | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Hyperplasia TGLs = 1-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 313	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55149

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|--------------------------|---------------------------|
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
|--------------------------|---------------------------|

OBSERVATIONS

- | | | | |
|-------------------|----------------------------|-------------|----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Harderian Gland | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Mild |
| | Olfactory Epi | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |
| | [Hyperplasia TGLs = 1-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 314	TMT: 4	SEX: Female	DAY ON TEST: 661
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55150

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|-------------------|--------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Heart |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Larynx | * Lymph Node, Bronchial | * Lymph Node, Mesenteric |
| * Spleen | | | |

OBSERVATIONS

- | | | | |
|---------|---|---|--|
| * Liver | | Hepatocellular Carcinoma
Necrosis | Multiple
Moderate |
| | [Hepatocellular Carcinoma TGLs = 2,3,4-16+6+17] | | |
| * Lung | Alveolar Epith
Bronchiole | Hepatocellular Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Metastatic (Liver)
Marked
Moderate
Mild |
| | [Hepatocellular Carcinoma TGLs = 1,6,7,8,9-4+12+13+14+15] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Minimal
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |

PRIMARY CAUSE OF DEATH - Liver Hepatocellular Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 315 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55151

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Adrenal Medulla
- * Clitoral Gland
- * Heart
- * Intestine Small, Duodenum
- * Lymph Node, Bronchial
- * Mammary Gland
- * Salivary Glands
- * Thymus
- * Bone
- * Esophagus
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Mandibular
- * Pancreas
- * Skin
- * Thyroid Gland
- * Bone Marrow
- * Eye
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mediastinal
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|-----------|---|------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 2,3-5+6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-6] | | |
| * Nose | | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| | Olfactory Epi | | |
| * Ovary | | Cystadenoma | |
| | [Cystadenoma TGLs = 1-8] | | |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 316	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55152

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | [Basophilic Focus TGLs = 1-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4,5-4] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-5] | | |
| * Thymus | | Lymphoma Malignant | |
| * Uterus | | Hyperplasia | Cystic, Marked |
| | Endometrium | | |
| | [Hyperplasia TGLs = 3-9] | | |

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 317	TMT: 4	SEX: Female	DAY ON TEST: 638
DOSE: 1.25 mg/m3		DISP: Moribund Sacrifice	HISTO: 55153

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|----------------------------|--------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Clitoral Gland | * Esophagus |
| * Eye | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland |
| * Parathyroid Gland | * Skin | * Trachea | |

OBSERVATIONS

- | | | | |
|---------------------------|----------------------------------|--------------------|-------------------|
| * Adrenal Cortex | | Lymphoma Malignant | |
| * Bone Marrow | | Lymphoma Malignant | |
| * Brain | | Lymphoma Malignant | |
| * Gallbladder | | Lymphoma Malignant | |
| * Harderian Gland | | Lymphoma Malignant | |
| * Heart | | Mineralization | Mild |
| * Intestine Small, Ileum | | Lymphoma Malignant | |
| * Kidney | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 3,4,5,6,7-12+15+13+14+6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 2-5] | | |
| * Lung | | Lymphoma Malignant | |
| Lymph Node | Renal | Lymphoma Malignant | |
| | Deep Cervical | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 8-6] | | |
| [Lymphoma Malignant | TGLs = 9-16] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 12-7] | | |
| Mesentery | Fat | Necrosis | Mild |
| [Necrosis | TGLs = 10-15] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Lymphoma Malignant | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 317	TMT: 4	SEX: Female	DAY ON TEST: 638
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55153

ORGAN AND ACCOUNTABLE SITE STATUS

* Ovary	Lymphoma Malignant	
* Pancreas	Lymphoma Malignant	
* Pituitary Gland	Lymphoma Malignant	
[Lymphoma Malignant TGLs = 11-9]		
* Salivary Glands	Lymphoma Malignant	
* Spleen	Lymphoma Malignant	
[Lymphoma Malignant TGLs = 1-5]		
* Stomach, Forestomach	Lymphoma Malignant	
[Lymphoma Malignant TGLs = 13-9]		
* Stomach, Glandular	Lymphoma Malignant Ulcer	Moderate
[Lymphoma Malignant TGLs = 13-9]		
* Thymus	Lymphoma Malignant	
* Thyroid Gland	Lymphoma Malignant	
* Urinary Bladder	Lymphoma Malignant	
* Uterus	Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 318	TMT: 4	SEX: Female	DAY ON TEST: 698
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55154

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|-----------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Brain |
| * Clitoral Gland | * Esophagus | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Mammary Gland | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

AUTO PRECLUDES DIAG.

- | | | |
|-------|---------------|--------------------------|
| * Eye | * Gallbladder | * Intestine Small, Ileum |
|-------|---------------|--------------------------|

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-----------------------|
| * Bone Marrow | | Lymphoma Malignant | |
| * Heart | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 4-6] | | |
| * Kidney | | Lymphoma Malignant | |
| | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Minimal |
| | Bronchiole | Hyperplasia | Minimal |
| | | Lymphoma Malignant | |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Lymphoma Malignant | |
| * Pancreas | | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 318	TMT: 4	SEX: Female	DAY ON TEST: 698
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55154

ORGAN AND ACCOUNTABLE SITE STATUS

Skeletal Muscle [Lymphoma Malignant TGLs = 2-12]	Lymphoma Malignant	
* Spleen [Hematopoietic Cell Proliferation TGLs = 5-5]	Hematopoietic Cell Proliferation	Moderate
* Stomach, Forestomach [Ulcer TGLs = 6-9]	Ulcer	Mild
* Thymus	Lymphoma Malignant	
* Uterus	Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Heart Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 319	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55155

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-4] | Proteinosis | Mild |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | Pars Distalis | Metaplasia | Respiratory, Mild |
| * Pituitary Gland | | Adenoma | |
| | [Adenoma TGLs = 4-9] | | |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 320	TMT: 4	SEX: Female	DAY ON TEST: 506
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55156

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal |
|------------------|---------------------------|

OBSERVATIONS

- | | | | |
|----------|-------------------------------|---|---------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Mild |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Minimal |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Minimal
Respiratory, Minimal |
| * Skin | Subcut Tiss | Sarcoma | |
| | [Sarcoma TGLs = 1-12+13+14] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Sarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 321	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55157

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|------------------|---------------------|----------|
| * Clitoral Gland | * Parathyroid Gland | * Thymus |
|------------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Moderate |
| | | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 322	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55158

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|---------------|-------------------------|
| * Gallbladder | * Lymph Node, Bronchial |
|---------------|-------------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|----------------------|
| * Harderian Gland | | Adenoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 3,4-13+5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-6] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 323	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55159

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------|--|---|-------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Mixed Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 2-5]
[Mixed Cell Focus TGLs = 3-6] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Minimal |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Metaplasia | Moderate
Respiratory, Mild |
| * Ovary | | Thrombosis | Marked |
| | [Thrombosis TGLs = 1-12] | | |
| * Pituitary Gland | Pars Distalis | Adenoma | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 324	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55160

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Mediastinal

OBSERVATIONS

- | | | | |
|--------------------------|--|------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 3,4-12+6] | | |
| * Lung | | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Proteinosis | Minimal |
| | [Proteinosis TGLs = 2-4] | | |
| * Lymph Node, Mesenteric | | Ectasia | Moderate |
| | [Ectasia TGLs = 5-14] | | |
| Mesentery | | Necrosis | Mild |
| | Fat | | |
| | [Necrosis TGLs = 1-14] | | |
| * Nose | | Atrophy | Mild |
| | Turbinates | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | | Hyperplasia | Cystic, Mild |
| | Endometrium | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 325	TMT: 4	SEX: Female	DAY ON TEST: 656
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55161

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland | * Ovary |
| * Pancreas | * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------|------------------------------------|---|-------------------------------|
| * Kidney | | Lymphoma Malignant
Nephropathy | Mild |
| | [Lymphoma Malignant TGLs = 9-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Minimal
Minimal
Minimal |
| Lymph Node | Renal
Lumbar | Lymphoma Malignant
Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 5-6] | | |
| | [Lymphoma Malignant TGLs = 6-15] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-8] | | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-3] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 7-14] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	325	TMT:	4	SEX:	Female	DAY ON TEST:	656
		DOSE:	1.25 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55161

ORGAN AND ACCOUNTABLE SITE STATUS

* Pituitary Gland	Olfactory Epi Pars Distalis	Metaplasia Hyperplasia	Respiratory, Mild Mild
* Skin	Subcut Tiss	Inflammation Sarcoma	Chronic Active, Moderate
	[Sarcoma TGLs = 2-12]		
* Spleen	[Lymphoma Malignant TGLs = 4-5]	Lymphoma Malignant	
* Thymus		Lymphoma Malignant	
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 326	TMT: 4	SEX: Female	DAY ON TEST: 537
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55162

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|--|---|----------------------------------|
| * Kidney | | Infarct | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Minimal
Minimal
Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| * Uterus | Endometrium | Hyperplasia
Thrombosis | Cystic, Minimal
Mild |
| | [Thrombosis TGLs = 2-9] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 327	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55163

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|----------------|-------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Mild |
| * Lung | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 328	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55164

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------|-------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Harderian Gland |
| * Heart | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

AUTO PRECLUDES DIAG.

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |

OBSERVATIONS

- | | | | |
|---------------------------|--|--------------------------------|----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Lymph Node, Bronchial | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-6] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | | Inflammation | Suppurative, Minimal |
| Pleura | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4-13] | | |
| Skeletal Muscle | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 328 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Natural Death

DAY ON TEST: 731
HISTO: 55164

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 329	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55165

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---------------------------------------|------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1-6] | | |
| * Lung | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 330	TMT: 4	SEX: Female	DAY ON TEST: 671
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55166

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|--------------------------|---------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Gallbladder | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- | | | | |
|------------------|-------------------------|---------------------|----------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Parathyroid Gland | * Thymus |
|------------------|-------------------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|-----------------------------|---|--------------------------------|------------------------------|
| * Eye | | Carcinoma | Metastatic (Harderian Gland) |
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 2-11] | | |
| * Intestine Small, Duodenum | | Inflammation | Acute, Moderate |
| * Islets, Pancreatic | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Minimal |
| | Bronchiole | Hyperplasia | Minimal |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pituitary Gland | | Adenoma | |
| | Pars Distalis | | |
| | [Adenoma TGLs = 3-9] | | |

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Distalis Adenoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 331 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55167

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Ovary
- * Skin
- * Thymus
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pancreas
- * Spleen
- * Thyroid Gland
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Liver
- * Lymph Node, Mesenteric
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Mammary Gland
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------|------------------------------|---|---------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Minimal |
| Mesentery | | Inflammation | Chronic Active, Mild |
| * Nose | Olfactory Epi | Hyperplasia
Inflammation | Minimal
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 332	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55168

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Mediastinal

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Adrenal Medulla | | Pheochromocytoma Benign | |
| * Kidney | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | | Hepatocellular Carcinoma | |
| | [Hepatocellular Adenoma TGLs = 2,4,7,8,9-5+15+17+18+19] | | |
| | [Hepatocellular Carcinoma TGLs = 3-13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,5-12+4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Inflammation | Suppurative, Moderate |
| | | Metaplasia | Respiratory, Mild |
| * Pituitary Gland | | Olfactory Epi | |
| | Pars Distalis | Adenoma | |
| * Uterus | | Angiectasis | Mild |
| | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Angiectasis TGLs = 6-9] | | |

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 333	TMT: 4	SEX: Female	DAY ON TEST: 391
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55169

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Clitoral Gland | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Mammary Gland | * Parathyroid Gland | * Pituitary Gland | * Skin |
| * Thyroid Gland | * Trachea | | |

OBSERVATIONS

- | | | | |
|---------------------------|---|--|---------------------------------|
| * Brain | | Lymphoma Malignant | |
| * Gallbladder | | Lymphoma Malignant | |
| * Kidney | [Lymphoma Malignant TGLs = 6-6] | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant
Necrosis | Moderate |
| * Lung | [Lymphoma Malignant TGLs = 2,3,4-5+6] | Hyperplasia
Hyperplasia
Lymphoma Malignant | Minimal
Minimal |
| Lymph Node | Renal
Lumbar | Lymphoma Malignant
Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 7-12] | | |
| | [Lymphoma Malignant TGLs = 8-13] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 9-3] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 5-13] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Lymphoma Malignant | Minimal
Suppurative, Minimal |
| * Ovary | | Lymphoma Malignant | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 333	TMT: 4	SEX: Female	DAY ON TEST: 391
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55169

ORGAN AND ACCOUNTABLE SITE STATUS

* Pancreas	Lymphoma Malignant	
* Salivary Glands	Lymphoma Malignant	
* Spleen	Lymphoma Malignant	
[Lymphoma Malignant TGLs = 1-5]		
* Stomach, Forestomach	Lymphoma Malignant	
* Stomach, Glandular	Lymphoma Malignant Necrosis	Mild
* Thymus	Lymphoma Malignant	
* Urinary Bladder	Lymphoma Malignant	
* Uterus	Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 334	TMT: 4	SEX: Female	DAY ON TEST: 537
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55170

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|-------------------------|---------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Parathyroid Gland |
|-------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Hyperplasia
Inflammation
Metaplasia | Mild
Minimal
Suppurative, Minimal
Respiratory, Mild |
| | Olfactory Epi | | |
| * Uterus | Endometrium | Hyperplasia
Polyp Stromal | Cystic, Moderate |
| | [Polyp Stromal TGLs = 2-13] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

ANIMAL NUM: 335	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55171

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|---------------------------|--|--------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| | | Lymphoma Malignant | |
| | [Hepatocellular Adenoma TGLs = 2-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-6] | | |
| * Nose | | Atrophy | Minimal |
| | Turbinate | Hyperplasia | Mild |
| | Olfactory Epi | Inflammation | Suppurative, Minimal |
| | | Metaplasia | Respiratory, Minimal |
| * Thymus | | Lymphoma Malignant | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	335	TMT:	4	SEX:	Female	DAY ON TEST:	732
		DOSE:	1.25 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55171

ORGAN AND ACCOUNTABLE SITE STATUS

* Uterus	Endometrium	Hyperplasia	Cystic, Mild
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TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 336	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55172

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Mammary Gland | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------|-----------------------------------|--------------------|-----------------------|
| * Eye | | Phthisis Bulbi | Moderate |
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 1-12] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| | [Tension Lipidosis TGLs = 4-14] | | |
| * Lung | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Lymphoma Malignant | |
| | | Proteinosis | Mild |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-5] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 336 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 732
HISTO: 55172

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus

Lymphoma Malignant

* Uterus

Hemangiosarcoma

[Hemangiosarcoma TGLs = 2-9]

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 337	TMT: 4	SEX: Female	DAY ON TEST: 614
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55173

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|--------------------------|------------------------------|---|---------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Mild |
| * Lymph Node, Mesenteric | | Sarcoma | Metastatic (Skin) |
| | [Sarcoma TGLs = 3-7] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Metaplasia | Mild
Respiratory, Mild |
| * Skin | Subcut Tiss | Sarcoma | Multiple |
| | [Sarcoma TGLs = 1,2-6+12] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Sarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 338	TMT: 4	SEX: Female	DAY ON TEST: 505
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55174

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland |
| * Ovary | * Pancreas | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | |
|---------------|---------------------|
| * Gallbladder | * Parathyroid Gland |
|---------------|---------------------|

OBSERVATIONS

- | | | | |
|---------------------------|---|---|------------------------------|
| * Harderian Gland | | Lymphoma Malignant | |
| * Heart | | Lymphoma Malignant
Necrosis | Mild |
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Lymphoma Malignant TGLs = 4,5,6-5+14+13] | Lymphoma Malignant | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Mild
Mild
Minimal |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | | |
| Lymph Node | Renal | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 8-6] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 7-15] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Mild
Suppurative, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	338	TMT:	4	SEX:	Female	DAY ON TEST:	505
		DOSE:	1.25 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55174

ORGAN AND ACCOUNTABLE SITE STATUS

	Olfactory Epi	Lymphoma Malignant Metaplasia	Respiratory, Minimal
* Pituitary Gland		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 2,3-12]		
* Thymus		Lymphoma Malignant	

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

ANIMAL NUM: 339	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55175

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland | * Pancreas |
| * Pituitary Gland | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------|---|---|--|
| * Kidney | | Lymphoma Malignant
Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatocellular Carcinoma
Lymphoma Malignant | Multiple
Multiple |
| | [Hepatocellular Adenoma TGLs = 3,4-5+6] | | |
| | [Hepatocellular Carcinoma TGLs = 1,2-12+14] | | |
| * Lung | Alveolar Epith
Bronchiole | Hepatocellular Carcinoma
Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Metastatic (Liver)
Moderate
Moderate
Mild |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 5-16] | | |
| * Nose | Turbinate
Olfactory Epi
Olfactory Epi | Atrophy
Hyperplasia
Metaplasia | Minimal
Minimal
Respiratory, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	339	TMT:	4	SEX:	Female	DAY ON TEST:	731
		DOSE:	1.25 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55175

ORGAN AND ACCOUNTABLE SITE STATUS

* Ovary		Cyst	Moderate
		Lymphoma Malignant	
	[Cyst TGLs = 6-8]		
* Salivary Glands		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
* Thymus		Lymphoma Malignant	
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Marked

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 340	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55176

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-----------------------|
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| | | Hepatocholangiocarcinoma | |
| | | Lymphoma Malignant | |
| | [Hepatocholangiocarcinoma TGLs = 3-6] | | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Adenoma TGLs = 2-12] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Lymphoma Malignant | |
| * Thymus | | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 340 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55176

ORGAN AND ACCOUNTABLE SITE STATUS

* Uterus

Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 341	TMT: 4	SEX: Female	DAY ON TEST: 731
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55177

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

OBSERVATIONS

- | | | | |
|-------------------|---------------------------------------|------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | | Hepatocellular Adenoma | |
| | [Clear Cell Focus TGLs = 2-5] | | |
| | [Hepatocellular Adenoma TGLs = 3-6] | | |
| * Lung | Bronchiole | Hyperplasia | Mild |
| | Alveolar Epith | Hyperplasia | Mild |
| | | Inflammation | Chronic Active, Mild |
| | | Proteinosis | Mild |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-12] | | |
| * Nose | Turbinate | Atrophy | Mild |
| | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Thrombosis | Moderate |
| | [Thrombosis TGLs = 1-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 342	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55178

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|---------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Parathyroid Gland |
|-------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 343	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55179

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|-------------------------|---------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Parathyroid Gland |
|-------------------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| | | Hepatocellular Adenoma | |
| | [Eosinophilic Focus TGLs = 3-5] | | |
| | [Hepatocellular Adenoma TGLs = 5-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| * Nose | | Atrophy | Mild |
| | Turbinate | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Skin | | Hemangiosarcoma | |
| | Subcut Tiss | | |
| | [Hemangiosarcoma TGLs = 4-14] | | |
| * Uterus | | Hyperplasia | Cystic, Mild |
| | Endometrium | | |

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 344	TMT: 4	SEX: Female	DAY ON TEST: 681
	DOSE: 1.25 mg/m3	DISP: Moribund Sacrifice	HISTO: 55180

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-----------------------------|---|--------------------------------|-----------------------|
| * Eye | Cornea | Inflammation | Chronic Active, Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Intestine Small, Duodenum | | Necrosis | Mild |
| * Islets, Pancreatic | | Hyperplasia | Moderate |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Mild |
| | [Vacuolization Cytoplasmic TGLs = 3-5] | Vacuolization Cytoplasmic | Mild |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Hyperplasia | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Stomach, Forestomach | | Ulcer | Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 344 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Moribund Sacrifice

DAY ON TEST: 681
HISTO: 55180

ORGAN AND ACCOUNTABLE SITE STATUS

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 345	TMT: 4	SEX: Female	DAY ON TEST: 733
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55181

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

INSUFFICIENT TISSUE

- * Clitoral Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Harderian Gland | | Carcinoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 6-14] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4-12+6+13+4] | | |
| | [Proteinosis TGLs = 5-4] | | |
| Mesentery | Fat | Necrosis | Moderate |
| | [Necrosis TGLs = 1-16] | | |
| * Nose | Turbinates | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 346	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55182

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
|-------------------------|--------------------------|---------------------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-------------------|
| * Adrenal Cortex | | Hypertrophy | Mild |
| * Eye | | Phthisis Bulbi | Mild |
| | [Phthisis Bulbi TGLs = 7-11] | | |
| * Harderian Gland | | Carcinoma | |
| | [Carcinoma TGLs = 8-11] | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 2,3,4,9-14+5+6+16] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Mild |
| | Bronchiole | Hyperplasia | Mild |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5-4] | | |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Mild |
| | Olfactory Epi | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	346	TMT:	4	SEX:	Female	DAY ON TEST:	732
		DOSE:	1.25 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55182

ORGAN AND ACCOUNTABLE SITE STATUS

* Skin	Subcut Tiss	Hemangiosarcoma	
	[Hemangiosarcoma TGLs = 1-12]		
* Spleen	Hematopoietic Cell Proliferation		Mild
	[Hematopoietic Cell Proliferation TGLs = 6-5]		
* Uterus	Endometrium	Hyperplasia	Cystic, Marked

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 347	TMT: 4	SEX: Female	DAY ON TEST: 730
	DOSE: 1.25 mg/m3	DISP: Natural Death	HISTO: 55183

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------|--------------------------|---------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Harderian Gland |
| * Heart | * Intestine Large, Colon | * Intestine Large, Rectum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|--------------------------|-----------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Nose | |

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Moderate |
| | | Hyperplasia | Moderate |
| | | Proteinosis | Minimal |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 348	TMT: 4	SEX: Female	DAY ON TEST: 732
	DOSE: 1.25 mg/m3	DISP: Terminal Sacrifice	HISTO: 55184

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|---------------------------|---------------------|
| * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|---|----------------------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-13] | Hepatocellular Carcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Moderate
Minimal |
| | [Hyperplasia TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Minimal |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 349 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55185

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Stomach, Forestomach
- * Trachea
- * Adrenal Medulla
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Lymph Node, Bronchial
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Mandibular
- * Ovary
- * Salivary Glands
- * Thymus
- * Bone Marrow
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mediastinal
- * Pancreas
- * Skin
- * Thyroid Gland

MISSING

- * Clitoral Gland

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Brain | Meninges | Infiltration Cellular | Mononuclear CI, Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Carcinoma TGLs = 2-12] | Hepatocellular Carcinoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Adenoma
Hyperplasia
Hyperplasia
Proteinosis | Mild
Mild
Minimal |
| * Nose | Turbinates | Atrophy
Inflammation
Metaplasia | Minimal
Suppurative, Mild
Respiratory, Mild |
| * Spleen | Olfactory Epi | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 1-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 350 TMT: 4
DOSE: 1.25 mg/m3

SEX: Female
DISP: Terminal Sacrifice

DAY ON TEST: 733
HISTO: 55186

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex
- * Brain
- * Gallbladder
- * Intestine Large, Colon
- * Intestine Small, Jejunum
- * Lymph Node, Bronchial
- * Mammary Gland
- * Pituitary Gland
- * Stomach, Forestomach
- * Trachea
- * Adrenal Medulla
- * Clitoral Gland
- * Harderian Gland
- * Intestine Large, Rectum
- * Islets, Pancreatic
- * Lymph Node, Mandibular
- * Ovary
- * Salivary Glands
- * Stomach, Glandular
- * Urinary Bladder
- * Bone
- * Esophagus
- * Heart
- * Intestine Small, Duodenum
- * Kidney
- * Lymph Node, Mediastinal
- * Pancreas
- * Skin
- * Thymus
- * Bone Marrow
- * Eye
- * Intestine Large, Cecum
- * Intestine Small, Ileum
- * Liver
- * Lymph Node, Mesenteric
- * Parathyroid Gland
- * Spleen
- * Thyroid Gland

OBSERVATIONS

- * Larynx Metaplasia Squamous, Minimal
- * Lung Alveolar Epith Hyperplasia Moderate
Bronchiole Hyperplasia Moderate
Proteinosis Minimal
- * Nose Turbinate Atrophy Mild
Olfactory Epi Hyperplasia Minimal
Olfactory Epi Metaplasia Respiratory, Minimal
- * Uterus Endometrium Hyperplasia Cystic, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 501 TMT: 6 DOSE: 2.5 mg/m3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 733 HISTO: 55037

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Clitoral Gland * Esophagus * Eye
* Gallbladder * Harderian Gland * Heart * Intestine Large, Cecum
* Intestine Large, Colon * Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum
* Intestine Small, Jejunum * Islets, Pancreatic * Liver * Lymph Node, Bronchial
* Lymph Node, Mandibular * Lymph Node, Mesenteric * Parathyroid Gland * Mammary Gland
* Ovary * Pancreas * Pituitary Gland
* Salivary Glands * Skin * Stomach, Forestomach
* Stomach, Glandular * Thymus * Trachea
* Urinary Bladder

OBSERVATIONS

- * Kidney Nephropathy Minimal
* Larynx Metaplasia Squamous, Minimal
* Lung Alveolar/Bronchiolar Carcinoma Multiple
Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Moderate
[Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+6]
* Nose Turbinate Atrophy Marked
Inflammation Suppurative, Mild
Metaplasia Respiratory, Moderate
* Uterus Endometrium Hyperplasia Cystic, Mild

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 502	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55038

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|--------------------------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 503 TMT: 6 DOSE: 2.5 mg/m3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 733 HISTO: 55039

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Brain
* Clitoral Gland * Esophagus * Eye * Gallbladder
* Harderian Gland * Heart * Intestine Large, Cecum * Intestine Large, Colon
* Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum
* Islets, Pancreatic * Kidney * Mammary Gland * Ovary
* Pituitary Gland * Salivary Glands * Skin * Stomach, Forestomach
* Stomach, Glandular * Thymus * Thyroid Gland * Trachea
* Urinary Bladder

MISSING

- * Parathyroid Gland

OBSERVATIONS

- * Bone Marrow Lymphoma Malignant
* Larynx Metaplasia Squamous, Minimal
* Liver Hepatocellular Adenoma TGLs = 1-12 Lymphoma Malignant Tension Lipidosis Mild
[Hepatocellular Adenoma TGLs = 1-12]
* Lung Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Moderate
* Lymph Node, Bronchial Lymphoma Malignant
* Lymph Node, Mandibular Lymphoma Malignant
* Lymph Node, Mediastinal Lymphoma Malignant
* Lymph Node, Mesenteric Lymphoma Malignant
* Nose Turbinate Atrophy Moderate
Inflammation Suppurative, Minimal
Olfactory Epi Metaplasia Respiratory, Moderate
* Pancreas Lymphoma Malignant
* Spleen Lymphoma Malignant
[Lymphoma Malignant TGLs = 2-5]
* Uterus Endometrium Hyperplasia Cystic, Mild

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 504	TMT: 6	SEX: Female	DAY ON TEST: 593
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55040

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12+13] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 505	TMT: 6	SEX: Female	DAY ON TEST: 571
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55041

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|----------|
| * Lymph Node, Bronchial | * Thymus |
|-------------------------|----------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Hyperplasia | Lymphoid, Mild |
| | [Hyperplasia TGLs = 3-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 506	TMT: 6	SEX: Female	DAY ON TEST: 677
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55042

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mesenteric | * Mammary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|-------------------------|--------------------------|---------------------|-------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland | * Pituitary Gland |
|-------------------------|--------------------------|---------------------|-------------------|

OBSERVATIONS

- | | | |
|---------------------------|---|---------------------|
| * Kidney | Nephropathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Lymphoma Malignant | |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Marked |
| | Alveolar Epith | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | Moderate |
| * Lymph Node, Mediastinal | Lymphoma Malignant | |
| Mesentery | Necrosis | Mild |
| | Fat | |
| | [Necrosis TGLs = 3-12] | |
| * Nose | Turbinate | Moderate |
| | Olfactory Epi | Suppurative, Mild |
| | | Respiratory, Marked |
| * Ovary | Lymphoma Malignant | |
| * Pancreas | Lymphoma Malignant | |
| * Spleen | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-6] | |
| * Uterus | Endometrium | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 507	TMT: 6	SEX: Female	DAY ON TEST: 562
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55043

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | |

INSUFFICIENT TISSUE

- * Urinary Bladder

OBSERVATIONS

- | | | | |
|---------------------------|--|---|--|
| * Harderian Gland | | Adenoma | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Multiple
Marked
Marked
Chronic Active, Moderate
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| | [Inflammation TGLs = 3-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 5-6] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| | Respirat Epith | Metaplasia | Squamous, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 508	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55044

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Mandibular

OBSERVATIONS

- | | | | |
|-----------|---|--------------------------------|--------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | Multiple |
| | [Hepatocellular Adenoma TGLs = 5,6-12+14] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |
| | | Inflammation | Chronic Active, Moderate |
| | [Inflammation TGLs = 3-9] | | |

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 509	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55045

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|--------------------------|---|---|--|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma
Lymphoma Malignant | |
| | [Hepatocellular Carcinoma TGLs = 1-12] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma
Hepatocellular Carcinoma | Metastatic (Liver) |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Moderate
Moderate
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| Lymph Node | Renal
Lumbar | Lymphoma Malignant
Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 5-6] | | |
| | [Lymphoma Malignant TGLs = 4-14] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Hyperplasia
Inflammation
Metaplasia | Marked
Minimal
Suppurative, Minimal
Respiratory, Moderate |
| | Olfactory Epi | | |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-5] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	509	TMT:	6	SEX:	Female	DAY ON TEST:	732
		DOSE:	2.5 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55045

ORGAN AND ACCOUNTABLE SITE STATUS

* Uterus	Endometrium	Hyperplasia	Cystic, Mild
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TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 510	TMT: 6	SEX: Female	DAY ON TEST: 551
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55046

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Moderate
Moderate
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-13] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 511	TMT: 6	SEX: Female	DAY ON TEST: 698
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55047

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|------------------|-------------------------|
| * Clitoral Gland | * Lymph Node, Bronchial |
|------------------|-------------------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Bronchiole | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Skin | Subcut Tiss | Sarcoma | |
| | [Sarcoma TGLs = 1-12+13] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 512	TMT: 6	SEX: Female	DAY ON TEST: 712
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55048

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Mammary Gland | * Salivary Glands | * Skin | * Thyroid Gland |
| * Trachea | | | |

MISSING

- * Parathyroid Gland

INSUFFICIENT TISSUE

- * Pituitary Gland

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-------------------|
| * Harderian Gland | | Lymphoma Malignant | |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | | Histiocytic Sarcoma | |
| | | Lymphoma Malignant | |
| | [Hepatocellular Carcinoma TGLs = 4-13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | | Histiocytic Sarcoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Lymphoma Malignant | |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| Lymph Node | | Lymphoma Malignant | |
| | Renal | Lymphoma Malignant | |
| | Pancreatic | Lymphoma Malignant | |
| | Axillary | Lymphoma Malignant | |
| | Iliac | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 7-15] | | |
| | [Lymphoma Malignant TGLs = 11-16] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 512	TMT: 6	SEX: Female	DAY ON TEST: 712
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55048

ORGAN AND ACCOUNTABLE SITE STATUS

	[Lymphoma Malignant TGLs = 10-19]		
	[Lymphoma Malignant TGLs = 8-18]		
* Lymph Node, Bronchial		Lymphoma Malignant	
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
* Lymph Node, Mesenteric		Histiocytic Sarcoma	
		Lymphoma Malignant	
	[Histiocytic Sarcoma TGLs = 12-17]		
	[Lymphoma Malignant TGLs = 12-17]		
Mesentery	Fat	Necrosis	Mild
	[Necrosis TGLs = 9-6]		
* Nose	Turbinates	Atrophy	Moderate
		Inflammation	Suppurative, Mild
	Olfactory Epi	Metaplasia	Respiratory, Mild
* Ovary		Lymphoma Malignant	
* Pancreas		Atrophy	Marked
* Spleen		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 5,6-5+16]		
* Stomach, Forestomach		Lymphoma Malignant	
* Stomach, Glandular		Lymphoma Malignant	
* Thymus		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 2-12]		
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 513	TMT: 6	SEX: Female	DAY ON TEST: 703
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55049

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|---------------------------|---------------------|
| * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------------------|---------------------|

OBSERVATIONS

- | | | |
|-----------------|---|-----------------------|
| * Kidney | Nephropathy | Minimal |
| * Larynx | Metaplasia | Squamous, Minimal |
| * Liver | Necrosis | Mild |
| * Lung | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Marked |
| | Hyperplasia | Marked |
| | Hyperplasia | Mild |
| | Proteinosis | |
| Lymph Node | Iliac | Moderate |
| | [Ectasia TGLs = 3-6] | |
| * Mammary Gland | Carcinoma | |
| | [Carcinoma TGLs = 1-12] | |
| * Nose | Turbinate | Moderate |
| | Olfactory Epi | Suppurative, Mild |
| | | Respiratory, Moderate |
| * Spleen | Hematopoietic Cell Proliferation | Marked |
| | [Hematopoietic Cell Proliferation TGLs = 2-5] | |
| * Uterus | Endometrium | Cystic, Mild |
| | [Hyperplasia TGLs = 4-9] | |

PRIMARY CAUSE OF DEATH - Mammary Gland Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 514	TMT: 6	SEX: Female	DAY ON TEST: 571
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55050

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Ovary | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Skin | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Thymus | | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-----------|--|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| * Nose | Turbinate | Atrophy | Marked |
| | Respirat Epith | Metaplasia | Squamous, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 515	TMT: 6	SEX: Female	DAY ON TEST: 646
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55051

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Gallbladder

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Kidney | | Infarct
Nephropathy | Moderate
Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma
Hepatodiaphragmatic Nodule | |
| | [Hepatocellular Adenoma TGLs = 3-13]
[Hepatodiaphragmatic Nodule TGLs = 4-5] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Moderate
Suppurative, Mild
Respiratory, Mild |
| * Ovary | | Cyst | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

ANIMAL NUM: 516	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55052

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Bone | * Bone Marrow | * Brain | * Clitoral Gland |
| * Esophagus | * Eye | * Harderian Gland | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |

MISSING

- * Gallbladder

OBSERVATIONS

- | | | | |
|---------------------------|------------------------------------|--------------------|----------------------|
| * Adrenal Cortex | | Lymphoma Malignant | |
| * Adrenal Medulla | | Lymphoma Malignant | |
| * Kidney | | Lymphoma Malignant | |
| | | Nephropathy | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 5-6] | | |
| * Lung | | Alveolar Epith | Moderate |
| | | Bronchiole | Moderate |
| | | Hyperplasia | |
| | | Hyperplasia | |
| | | Lymphoma Malignant | |
| | | Proteinosis | Mild |
| Lymph Node | Iliac | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-12] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 1-3] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 4-13] | | |
| * Nose | | Turbinate | Moderate |
| | | Olfactory Epi | Minimal |
| | | Atrophy | |
| | | Hyperplasia | |
| | | Inflammation | Suppurative, Minimal |
| | | Metaplasia | Respiratory, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	516	TMT:	6	SEX:	Female	DAY ON TEST:	733
		DOSE:	2.5 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55052

ORGAN AND ACCOUNTABLE SITE STATUS

* Ovary		Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 2-5]		
* Thymus		Lymphoma Malignant	
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

ANIMAL NUM: 517	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55053

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|-------------------------|--|----------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4-12+4+6] | | |
| * Lymph Node, Bronchial | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | | Atrophy | Moderate |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| | Olfactory Epi | | |
| * Ovary | | Cyst | Marked |
| | [Cyst TGLs = 9-8] | | |
| Skeletal Muscle | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5,6,7-12+13+14] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | [Hematopoietic Cell Proliferation TGLs = 8-5] | | |
| * Uterus | | Hyperplasia | Cystic, Mild |
| | Endometrium | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 518	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55054

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|---------------|---------------------|
| * Gallbladder | * Parathyroid Gland |
|---------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|------------------------------|----------------------|
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 2-11] | | |
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 519	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55055

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Mediastinal |
|------------------|---------------------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--------------------------------|
| * Larynx | | Degeneration | Minimal |
| * Liver | | Eosinophilic Focus
Hepatocellular Adenoma | |
| | [Eosinophilic Focus TGLs = 2-6]
[Hepatocellular Adenoma TGLs = 1-13] | | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4-12]
[Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	520	TMT:	6	SEX:	Female	DAY ON TEST:	732
		DOSE:	2.5 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55056

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Mammary Gland | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|---------------------------|------------------------------|---|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| Lymph Node | Renal | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 4-6] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 5-3] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Hyperplasia
Inflammation | Moderate
Minimal
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Marked |
| [Cyst | TGLs = 3-8] | | |
| * Spleen | | Lymphoma Malignant | |
| [Lymphoma Malignant | TGLs = 1,2-12+13] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 521	TMT: 6	SEX: Female	DAY ON TEST: 587
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55057

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|---------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- | | |
|-------------------------|---------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
|-------------------------|---------------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|-------|---------------|-----------------------------|----------|
| * Eye | * Gallbladder | * Intestine Small, Duodenum | * Spleen |
|-------|---------------|-----------------------------|----------|

OBSERVATIONS

- | | | | |
|------------------------|---------------------------------|---|---|
| * Bone | | Osteosarcoma | |
| | [Osteosarcoma TGLs = 1-14] | | |
| * Harderian Gland | | Hyperplasia | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Osteosarcoma
Proteinosis | Mild
Mild
Metastatic (Bone)
Mild |
| | [Osteosarcoma TGLs = 3,4,5-4] | | |
| | [Proteinosis TGLs = 6-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Minimal |
| | | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Mild |
| | | Osteosarcoma | Metastatic (Bone) |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Moderate |
| * Stomach, Glandular | | Metaplasia | Hepatocyte, Mild |
| * Thymus | | Osteosarcoma | Metastatic (Bone) |
| | [Osteosarcoma TGLs = 2-12+13] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 521 TMT: 6
DOSE: 2.5 mg/m3

SEX: Female
DISP: Natural Death

DAY ON TEST: 587
HISTO: 55057

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Bone Osteosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 522	TMT: 6	SEX: Female	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55058

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | | |
|---------------|---------------------------|---------------------|
| * Gallbladder | * Lymph Node, Mediastinal | * Parathyroid Gland |
|---------------|---------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-----------|------------------------------|---|--------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Marked |
| | [Proteinosis TGLs = 1-4] | | |
| Mesentery | Fat | Congestion
Necrosis | Mild
Mild |
| | [Congestion TGLs = 2-6] | | |
| | [Necrosis TGLs = 3-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Moderate |
| | [Cyst TGLs = 4-8] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 523	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55059

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|------------------|--------------------------|--------------------------|
| * Clitoral Gland | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
|------------------|--------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 2-5] | | |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Mild |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Hyperplasia
Inflammation | Moderate
Minimal
Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 524	TMT: 6	SEX: Female	DAY ON TEST: 626
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55060

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Mammary Gland |
| * Ovary | * Parathyroid Gland | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|--------------------------|--|----------------------------------|-----------------------|
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Moderate |
| | | Hyperplasia | Moderate |
| | | Lymphoma Malignant | |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,5-15+4] | | |
| | [Proteinosis TGLs = 6-4] | | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Moderate |
| * Pancreas | | Lymphoma Malignant | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Salivary Glands | | Lymphoma Malignant | |
| * Skin | Subcut Tiss | Sarcoma | Multiple |
| | [Sarcoma TGLs = 1,2-12+13+16] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Moderate |
| | | Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	524	TMT:	6	SEX:	Female	DAY ON TEST:	626
		DOSE:	2.5 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55060

ORGAN AND ACCOUNTABLE SITE STATUS

* Thymus		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Mild

PRIMARY CAUSE OF DEATH - Skin Subcut Tiss Sarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 525	TMT: 6	SEX: Female	DAY ON TEST: 537
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55061

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Mammary Gland | * Ovary |
| * Pituitary Gland | * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|---------------------------|--|---|--|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Lymphoma Malignant | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Lymphoma Malignant
Proteinosis | Moderate
Moderate
Moderate |
| Lymph Node | Renal
Deep Cervical | Lymphoma Malignant
Lymphoma Malignant | |
| | [Lymphoma Malignant
[Lymphoma Malignant | TGLs = 4,5-12+13]
TGLs = 6,7-14+15] | |
| * Lymph Node, Mandibular | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| | [Lymphoma Malignant | TGLs = 8-7] | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Mild
Respiratory, Moderate |
| | Olfactory Epi | | |
| * Pancreas | | Lymphoma Malignant | |
| * Salivary Glands | | Lymphoma Malignant | |
| * Skin | | Inflammation | Chronic Active, Marked |
| | [Inflammation | TGLs = 1-16] | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 525	TMT: 6	SEX: Female	DAY ON TEST: 537
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55061

ORGAN AND ACCOUNTABLE SITE STATUS

* Spleen	[Lymphoma Malignant TGLs = 2-5]	Lymphoma Malignant	
* Thymus	[Lymphoma Malignant TGLs = 3-3]	Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 526	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55062

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

INSUFFICIENT TISSUE

- * Intestine Large, Rectum

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 527	TMT: 6	SEX: Female	DAY ON TEST: 646
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55063

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Heart |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|---------------|---------------------|----------|
| * Gallbladder | * Parathyroid Gland | * Thymus |
|---------------|---------------------|----------|

OBSERVATIONS

- | | | | |
|------------------------|---|------------------------------|--------------------------|
| * Eye | Cornea | Inflammation | Chronic Active, Moderate |
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 5-11] | | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | Mild |
| | | Fatty Change | Multiple |
| | [Basophilic Focus TGLs = 2-5] | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 1,3,4-5+12+14] | Mixed Cell Focus | |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Pituitary Gland | Pars Intermed | Adenoma | |
| | [Adenoma TGLs = 6-9] | | |
| * Stomach, Forestomach | | Ulcer | Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	527	TMT:	6	SEX:	Female	DAY ON TEST:	646
		DOSE:	2.5 mg/m3	DISP:	Moribund Sacrifice	HISTO:	55063

ORGAN AND ACCOUNTABLE SITE STATUS

* Uterus	Endometrium	Hyperplasia	Cystic, Mild
----------	-------------	-------------	--------------

PRIMARY CAUSE OF DEATH - Pituitary Gland Pars Intermed Adenoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 528	TMT: 6	SEX: Female	DAY ON TEST: 533
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55064

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------------|--|--------------------------------|-------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 529	TMT: 6	SEX: Female	DAY ON TEST: 709
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55065

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- | | |
|------------------|--------------------------|
| * Clitoral Gland | * Lymph Node, Mandibular |
|------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|---|----------------------------------|------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Infarct | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Ovary | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 3-8] | | |
| * Skin | | Inflammation | Chronic Active, Marked |
| | [Inflammation TGLs = 1-6] | | |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 2-5] | | |

PRIMARY CAUSE OF DEATH - Ovary Hemangiosarcoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 530	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55066

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|------------------|-------------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
|------------------|-------------------------|---------------------------|

INSUFFICIENT TISSUE

- * Gallbladder

OBSERVATIONS

- | | | | |
|-------------------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Moderate
Suppurative, Moderate
Respiratory, Moderate |
| | Olfactory Epi | | |
| * Ovary | [Cyst TGLs = 2-8] | Cyst | Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 531	TMT: 6	SEX: Female	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55067

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|---------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Clear Cell Focus | |
| | [Hepatocellular Adenoma TGLs = 1,2,3-12+6+14] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4-16] | Proteinosis | Moderate |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Pituitary Gland | | Hyperplasia | Marked |
| | Pars Distalis | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 532	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55068

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

INSUFFICIENT TISSUE

- | | |
|------------------|---------------|
| * Clitoral Gland | * Gallbladder |
|------------------|---------------|

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 4-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Moderate
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-6+4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Spleen | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 3-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Hyperplasia TGLs = 5-9] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 533	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55069

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Esophagus | * Eye | * Gallbladder | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|------------------|--------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Mandibular | * Parathyroid Gland |
|------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|---|------------------------------|
| * Adrenal Cortex | Subcapsular | Carcinoma | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4]
[Hyperplasia TGLs = 2-12] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 534	TMT: 6	SEX: Female	DAY ON TEST: 677
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55070

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|---------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4+6] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 535	TMT: 6	SEX: Female	DAY ON TEST: 593
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55071

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|------------------|---------------------|
| * Clitoral Gland | * Parathyroid Gland |
|------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|---|---|
| * Harderian Gland | | Adenoma | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Mild
Suppurative, Minimal
Respiratory, Mild |
| | Olfactory Epi | | |
| * Ovary | | Cyst | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 536	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55072

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Mild |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-12] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 537	TMT: 6	SEX: Female	DAY ON TEST: 709
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55073

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | | |
|------------------|--------|----------|
| * Clitoral Gland | * Skin | * Thymus |
|------------------|--------|----------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-------------------|
| * Heart | | Hemangiosarcoma | |
| | [Hemangiosarcoma TGLs = 6-5] | | |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | | Hepatocellular Adenoma | |
| | [Hepatocellular Adenoma TGLs = 4-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,5-4+6] | | |
| * Nose | | Atrophy | Mild |
| | Turbinate | Hyperplasia | Minimal |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 538	TMT: 6	SEX: Female	DAY ON TEST: 457
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55074

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|---|---|-------------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Eosinophilic Focus TGLs = 3-5] | Eosinophilic Focus | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Mild |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Mild
Suppurative, Mild |
| | Respirat Epith
Olfactory Epi | Metaplasia
Metaplasia | Squamous, Mild
Respiratory, Mild |
| * Ovary | [Cyst TGLs = 2-8] | Cyst | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 539	TMT: 6	SEX: Female	DAY ON TEST: 698
	DOSE: 2.5 mg/m3	DISP: Moribund Sacrifice	HISTO: 55075

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Mesenteric

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,4,3-4+6] | | |
| * Mammary Gland | | Hyperplasia | Mild |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Respirat Epith | Metaplasia | Squamous, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Ovary | | Cyst | Moderate |
| | [Cyst TGLs = 1-8] | | |
| * Stomach, Forestomach | | Hyperplasia | Squamous, Mild |
| | [Hyperplasia TGLs = 5-9] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 540	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55076

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|---------------|-------------------------|---------------------|
| * Gallbladder | * Lymph Node, Bronchial | * Parathyroid Gland |
|---------------|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|--------------------------------|-------------------|
| * Adrenal Cortex | Subcapsular | Carcinoma | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4,5-4+12+6] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 541 TMT: 6 DOSE: 2.5 mg/m3

SEX: Female DISP: Terminal Sacrifice

DAY ON TEST: 733 HISTO: 55077

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Adrenal Medulla * Bone * Bone Marrow
* Brain * Clitoral Gland * Esophagus * Eye
* Gallbladder * Harderian Gland * Heart * Intestine Large, Cecum
* Intestine Large, Colon * Intestine Large, Rectum * Intestine Small, Duodenum * Intestine Small, Ileum
* Intestine Small, Jejunum * Islets, Pancreatic * Kidney * Liver
* Lymph Node, Bronchial * Lymph Node, Mandibular * Lymph Node, Mesenteric * Mammary Gland
* Ovary * Pancreas * Parathyroid Gland * Pituitary Gland
* Salivary Glands * Skin * Spleen * Stomach, Forestomach
* Stomach, Glandular * Thymus * Thyroid Gland * Trachea
* Urinary Bladder * Uterus

MISSING

- * Lymph Node, Mediastinal

OBSERVATIONS

- * Larynx Degeneration Minimal
* Lung Alveolar/Bronchiolar Carcinoma Multiple
Alveolar Epith Hyperplasia Marked
Bronchiole Hyperplasia Marked
Proteinosis Moderate
[Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4]
* Nose Turbinate Atrophy Marked
Inflammation Suppurative, Mild
Olfactory Epi Metaplasia Respiratory, Moderate

ANIMAL NUM: 542	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55078

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-----------|--|--------------------------------|---------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Eosinophilic Focus | |
| | [Hepatocellular Adenoma TGLs = 1,3,4-12+6+5] | Hepatocellular Adenoma | Multiple |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 5-4] | Proteinosis | Moderate |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 6-15] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 543	TMT: 6	SEX: Female	DAY ON TEST: 616
	DOSE: 2.5 mg/m3	DISP: Natural Death	HISTO: 55079

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-------------------|-------------|-------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Heart |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Thyroid Gland | * Trachea | * Uterus | |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Eye | * Gallbladder | * Harderian Gland | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Lymph Node, Mesenteric | * Spleen | * Stomach, Glandular |
| * Thymus | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|----------|---|---|---|
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Moderate
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Minimal |
| | Olfactory Epi | Inflammation
Metaplasia | Suppurative, Minimal
Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 544	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55080

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|---------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------|--|------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-12] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 2-12] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 545	TMT: 6	SEX: Female	DAY ON TEST: 731
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55081

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|------------------------------|---|------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Moderate |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Minimal |
| | | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Minimal |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | | Polyp Stromal | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 546	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55082

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mandibular | * Mammary Gland | * Pancreas |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | |
|---------------------------|---|-------------------|
| * Heart | Cardiomyopathy | Minimal |
| * Kidney | Lymphoma Malignant | |
| * Larynx | Metaplasia | Squamous, Mild |
| * Liver | Hepatocellular Adenoma | |
| | Hepatocellular Carcinoma | |
| | Lymphoma Malignant | |
| | [Hepatocellular Adenoma TGLs = 8-6] | |
| | [Hepatocellular Carcinoma TGLs = 1-5] | |
| * Lung | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Marked |
| | Bronchiole | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4+6] | Moderate |
| Lymph Node | Lumbar | |
| | [Lymphoma Malignant TGLs = 7-6] | |
| * Lymph Node, Bronchial | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-3] | |
| * Lymph Node, Mesenteric | Lymphoma Malignant | |
| Mesentery | Fat | Necrosis |
| | | Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	546	TMT:	6	SEX:	Female	DAY ON TEST:	732
		DOSE:	2.5 mg/m3	DISP:	Terminal Sacrifice	HISTO:	55082

ORGAN AND ACCOUNTABLE SITE STATUS

	[Necrosis TGLs = 9-8]			
* Nose		Turbinate	Atrophy Inflammation Metaplasia	Moderate Suppurative, Mild Respiratory, Moderate
		Olfactory Epi		
* Ovary			Hemangiosarcoma Lymphoma Malignant	
	[Hemangiosarcoma TGLs = 5-8]			
* Pituitary Gland		Pars Distalis	Hyperplasia	Mild
* Spleen			Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 6-5]			
* Uterus		Endometrium	Hyperplasia	Cystic, Moderate

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 547	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55083

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+4+13] | Proteinosis | Marked |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Minimal |
| | | Metaplasia | Respiratory, Moderate |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 548	TMT: 6	SEX: Female	DAY ON TEST: 733
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55084

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Mammary Gland | * Ovary | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|---------------------|
| * Larynx | | Degeneration | Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Moderate |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Marked |
| | Olfactory Epi | Hyperplasia | Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Pancreas | | Atrophy | Minimal |
| * Spleen | | Lymphoma Malignant | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Hyperplasia TGLs = 1-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 549 TMT: 6 DOSE: 2.5 mg/m3

SEX: Female DISP: Moribund Sacrifice

DAY ON TEST: 593 HISTO: 55085

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- * Adrenal Cortex * Bone * Bone Marrow * Brain
* Clitoral Gland * Esophagus * Eye * Harderian Gland
* Heart * Intestine Large, Cecum * Intestine Large, Colon * Intestine Large, Rectum
* Intestine Small, Duodenum * Intestine Small, Ileum * Intestine Small, Jejunum * Islets, Pancreatic
* Kidney * Lymph Node, Bronchial * Lymph Node, Mediastinal * Lymph Node, Mesenteric
* Mammary Gland * Pancreas * Pituitary Gland * Salivary Glands
* Skin * Spleen * Stomach, Forestomach * Stomach, Glandular
* Thymus * Thyroid Gland * Trachea * Urinary Bladder

MISSING

- * Lymph Node, Mandibular * Parathyroid Gland

INSUFFICIENT TISSUE

- * Adrenal Medulla * Gallbladder

OBSERVATIONS

- * Larynx Metaplasia Squamous, Minimal
* Liver Necrosis Minimal
* Lung Alveolar Epith Hyperplasia Moderate
Bronchiole Hyperplasia Moderate
Proteinosis TGLs = 3-4 Proteinosis Moderate
* Nose Turbinate Atrophy Moderate
Olfactory Epi Metaplasia Respiratory, Moderate
* Ovary Cyst Moderate
[Cyst TGLs = 1-8]
Peripheral Nerve Schwannoma Malignant
[Schwannoma Malignant TGLs = 2-12+13]
* Uterus Endometrium Hyperplasia Cystic, Mild

PRIMARY CAUSE OF DEATH - Peripheral Nerve Schwannoma Malignant

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 550	TMT: 6	SEX: Female	DAY ON TEST: 732
	DOSE: 2.5 mg/m3	DISP: Terminal Sacrifice	HISTO: 55086

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|---|------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1,2-4+6] | Proteinosis | Moderate |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Hyperplasia | Minimal |
| | | Inflammation | Suppurative, Minimal |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 701	TMT: 8	SEX: Female	DAY ON TEST: 354
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54937

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|------------------------------|---|--|
| * Heart | | Inflammation | Suppurative, Mild |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Inflammation
Proteinosis | Mild
Mild
Acute, Moderate
Moderate |
| * Nose | Turbinates
Olfactory Epi | Atrophy
Hyperplasia
Inflammation | Moderate
Minimal
Suppurative, Mild |
| * Ovary | Olfactory Epi | Metaplasia
Inflammation
Luteoma | Respiratory, Marked
Suppurative, Moderate |

[Luteoma TGLs = 1-8]

PRIMARY CAUSE OF DEATH - Lung Inflammation

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	702	TMT:	8	SEX:	Female	DAY ON TEST:	732
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54938

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Mandibular | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Clitoral Gland

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-----------------------|
| * Heart | | Lymphoma Malignant | |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Lymphoma Malignant | |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4-4] | | |
| | [Proteinosis TGLs = 5-4] | | |
| * Lymph Node, Bronchial | | Lymphoma Malignant | |
| * Lymph Node, Mediastinal | | Lymphoma Malignant | |
| * Lymph Node, Mesenteric | | Lymphoma Malignant | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Marked |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 703	TMT: 8	SEX: Female	DAY ON TEST: 663
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54939

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+13+4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	704	TMT:	8	SEX:	Female	DAY ON TEST:	732
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54940

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|-----------------------------------|------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 2-11] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Basophilic Focus | |
| * Lung | | Alveolar/Bronchiolar Adenoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Proteinosis TGLs = 1-4] | Proteinosis | Marked |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 3-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 705	TMT: 8	SEX: Female	DAY ON TEST: 618
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54941

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|---------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Liver | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|----------------------|--|--------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| * Islets, Pancreatic | | Hyperplasia | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 706	TMT: 8	SEX: Female	DAY ON TEST: 709
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54942

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Harderian Gland | * Heart |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|------------------|---------------------|----------|
| * Clitoral Gland | * Parathyroid Gland | * Thymus |
|------------------|---------------------|----------|

AUTO PRECLUDES DIAG.

- | | | |
|-------|---------------|--------------------------|
| * Eye | * Gallbladder | * Intestine Large, Cecum |
|-------|---------------|--------------------------|

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Tension Lipidosis | Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Inflammation | Acute, Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-6] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Lymph Node, Bronchial | | Inflammation | Acute, Moderate |
| * Lymph Node, Mediastinal | | Inflammation | Acute, Marked |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 2-12] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 4-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 706 TMT: 8
DOSE: 5.0 mg/m3

SEX: Female
DISP: Natural Death

DAY ON TEST: 709
HISTO: 54942

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Lung Inflammation

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	707	TMT:	8	SEX:	Female	DAY ON TEST:	732
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54943

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Mediastinal

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-6+4+12]
[Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Marked |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 708	TMT: 8	SEX: Female	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54944

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Lymph Node, Mediastinal

INSUFFICIENT TISSUE

- * Lymph Node, Mesenteric

OBSERVATIONS

- | | | | |
|-------------------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3-6+4]
[Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 709	TMT: 8	SEX: Female	DAY ON TEST: 571
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54945

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Inflammation | Acute, Mild |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+13] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 710	TMT: 8	SEX: Female	DAY ON TEST: 618
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54946

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|-------------------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatodiaphragmatic Nodule TGLs = 4-13] | Hepatodiaphragmatic Nodule | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,3-12+4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | [Cystadenoma TGLs = 5-8] | Cystadenoma | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 711	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54947

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- | | | | |
|-----------|---|---|---|
| * Kidney | | Nephropathy | Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4]
[Proteinosis TGLs = 2-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 1-6] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi
Respirat Epith | Metaplasia
Metaplasia | Respiratory, Moderate
Squamous, Mild |
| * Ovary | | Cyst | Moderate |
| | [Cyst TGLs = 4-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 712	TMT: 8	SEX: Female	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54948

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|---------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
|-------------------------|---------------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Adenoma | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 713	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54949

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- | | | |
|------------------|-------------------------|--------------------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|------------------|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 714	TMT: 8	SEX: Female	DAY ON TEST: 660
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54950

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | * Uterus |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-------------------|--|--------------------------------|-----------------------|
| * Harderian Gland | | Adenoma | |
| | [Adenoma TGLs = 4-13] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | Alveolar Epith | Metaplasia | Squamous, Minimal |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Skin | Subcut Tiss | Hemangioma | |
| | [Hemangioma TGLs = 1-15] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 715	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54951

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|------------------|--------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Mandibular | * Parathyroid Gland |
|------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--|--|
| * Kidney | Renal Tubule | Carcinoma
Nephropathy | Minimal |
| | [Carcinoma TGLs = 5-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma
Alveolar/Bronchiolar Carcinoma | Multiple
Marked
Marked
Marked |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 4-4] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Moderate |
| | [Cyst TGLs = 1-8] | | |
| * Spleen | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 2-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 716	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54952

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|------------------|----------------------------|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 717	TMT: 8	SEX: Female	DAY ON TEST: 554
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54953

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Bone | * Bone Marrow | * Brain | * Clitoral Gland |
| * Esophagus | * Eye | * Gallbladder | * Harderian Gland |
| * Heart | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Kidney | * Liver | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- | | | |
|-------------------|-------------------------|--------------------------|
| * Adrenal Medulla | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------|-------------------------|--------------------------|

INSUFFICIENT TISSUE

- * Adrenal Cortex

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

ANIMAL NUM:	718	TMT:	8	SEX:	Female	DAY ON TEST:	604
		DOSE:	5.0 mg/m3	DISP:	Moribund Sacrifice	HISTO:	54954

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

OBSERVATIONS

- | | | | |
|---------------------------|----------------------------------|--------------------------------|-------------------------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| | | Sarcoma | Metastatic (Uncertain Primary Site) |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Moderate |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | | Sarcoma | Metastatic (Uncertain Primary Site) |
| | [Alveolar/Bronchiolar Carcinoma | TGLs = 1-12] | |
| | [Sarcoma | TGLs = 2-13] | |
| * Lymph Node, Bronchial | | Sarcoma | Metastatic (Uncertain Primary Site) |
| * Lymph Node, Mediastinal | | Sarcoma | Metastatic (Uncertain Primary Site) |
| Mesentery | Fat | Necrosis | Mild |
| | | Sarcoma | Metastatic (Uncertain Primary Site) |
| | [Necrosis | TGLs = 5-15] | |
| | [Sarcoma | TGLs = 4-14] | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |

PRIMARY CAUSE OF DEATH - Lung Sarcoma Uncertain Primary Site

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 719	TMT: 8	SEX: Female	DAY ON TEST: 684
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54955

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Cortex | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Adrenal Medulla | | Hyperplasia | Mild |
| * Heart | | Thrombosis | Moderate |
| * Kidney | | Infarct | Moderate |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+13] | | |
| | [Proteinosis TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNV

ANIMAL NUM: 720	TMT: 8	SEX: Female	DAY ON TEST: 660
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54956

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| | [Proteinosis TGLs = 5-4] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Moderate |
| | [Cyst TGLs = 4-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |
| | [Hyperplasia TGLs = 3-9] | | |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 721	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54957

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | | |
|------------------|--------------------------|---------------------------|
| * Clitoral Gland | * Lymph Node, Mandibular | * Lymph Node, Mediastinal |
|------------------|--------------------------|---------------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Bronchiole | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| | [Proteinosis TGLs = 3,4-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 722	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54958

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mandibular |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | * Uterus | | |

INSUFFICIENT TISSUE

- * Larynx

OBSERVATIONS

- | | | | |
|---------------------------|------------------------------|---|--|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Lung | Bronchiole
Alveolar Epith | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Proteinosis TGLs = 2-4] | | |
| * Lymph Node, Mediastinal | | Hyperplasia | Lymphoid, Marked |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Marked |
| * Ovary | | Cystadenoma | |
| | [Cystadenoma TGLs = 1-8] | | |
| * Thymus | | Hyperplasia | Lymphoid, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 723	TMT: 8	SEX: Female	DAY ON TEST: 505
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54959

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+14] | | |
| * Nose | Turbinate | Atrophy | Moderate |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 724	TMT: 8	SEX: Female	DAY ON TEST: 533
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54960

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- | | |
|-------------------------|---------------------|
| * Lymph Node, Bronchial | * Parathyroid Gland |
|-------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate
Olfactory Epi | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 725	TMT: 8	SEX: Female	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54961

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

MISSING

- | | |
|------------------|-------------------------|
| * Clitoral Gland | * Lymph Node, Bronchial |
|------------------|-------------------------|

OBSERVATIONS

- | | | | |
|-------------------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Angiectasis | Moderate |
| | [Angiectasis TGLs = 3-8] | | |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Moderate |
| * Uterus | | Histiocytic Sarcoma | |
| | [Histiocytic Sarcoma TGLs = 4-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 726	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54962

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Salivary Glands | * Skin | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | |
|--------------------------|---------------------|-------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland | * Pituitary Gland |
|--------------------------|---------------------|-------------------|

OBSERVATIONS

- | | | | |
|------------|---|----------------------------------|------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| | [Inflammation TGLs = 4,5-4] | | |
| | [Proteinosis TGLs = 2-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 6-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Pancreas | | Atrophy | Minimal |
| * Spleen | | Hematopoietic Cell Proliferation | Mild |
| | [Hematopoietic Cell Proliferation TGLs = 1-5] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 727	TMT: 8	SEX: Female	DAY ON TEST: 610
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54963

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------|------------------------|-------------------|--------------------------|
| * Bone | * Bone Marrow | * Brain | * Clitoral Gland |
| * Esophagus | * Harderian Gland | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pituitary Gland | * Salivary Glands |
| * Skin | * Stomach, Forestomach | * Uterus | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

AUTO PRECLUDES DIAG.

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Eye | * Gallbladder |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Larynx |
| * Pancreas | * Spleen | * Stomach, Glandular | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|---------------------------|---|--------------------------------|-------------------------------------|
| * Heart | | Sarcoma | Metastatic (Uncertain Primary Site) |
| | [Sarcoma TGLs = 6-5] | | |
| * Kidney | | Sarcoma | Metastatic (Uncertain Primary Site) |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | | Sarcoma | Metastatic (Uncertain Primary Site) |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| | [Hyperplasia TGLs = 3-12] | | |
| | [Sarcoma TGLs = 3-12] | | |
| * Lymph Node, Mediastinal | | Sarcoma | Metastatic (Uncertain Primary Site) |
| * Nose | Turbinate | Atrophy | Mild |
| | Olfactory Epi | Inflammation | Suppurative, Mild |
| | | Metaplasia | Respiratory, Minimal |
| * Thymus | | Sarcoma | Metastatic (Uncertain Primary Site) |
| | [Sarcoma TGLs = 5-3] | | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 727 TMT: 8
 DOSE: 5.0 mg/m3

SEX: Female
DISP: Natural Death

DAY ON TEST: 610
HISTO: 54963

ORGAN AND ACCOUNTABLE SITE STATUS

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 728	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54964

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Mesenteric

OBSERVATIONS

- | | | | |
|----------|--|--|--|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole
Alveolus | Hyperplasia
Hyperplasia
Infiltration Cellular
Proteinosis | Marked
Marked
Histiocyte, Marked
Marked |
| | [Infiltration Cellular TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Marked
Respiratory, Marked |
| | Olfactory Epi | | |
| * Uterus | | Polyp Stromal
Thrombosis | Mild |
| | [Polyp Stromal TGLs = 2-9] | | |
| | [Thrombosis TGLs = 3-9] | | |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 729	TMT: 8	SEX: Female	DAY ON TEST: 506
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54965

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Mandibular

OBSERVATIONS

- | | | | |
|----------|--|---|-------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 730	TMT: 8	SEX: Female	DAY ON TEST: 713
	DOSE: 5.0 mg/m3	DISP: Natural Death	HISTO: 54966

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Mild |
| * Liver | | Necrosis | Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 4-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	731	TMT:	8	SEX:	Female	DAY ON TEST:	732
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54967

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolus | Infiltration Cellular | Histiocyte, Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| | [Infiltration Cellular TGLs = 3-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 732	TMT: 8	SEX: Female	DAY ON TEST: 684
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54968

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- | | | |
|-------------------------|--------------------------|----------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Thymus |
|-------------------------|--------------------------|----------|

OBSERVATIONS

- | | | | |
|---------------------------|--|---|-----------------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-12]
[Proteinosis TGLs = 1-4] | | |
| * Lymph Node, Mediastinal | | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Nose | Turbinate | Atrophy
Inflammation | Moderate
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 733	TMT: 8	SEX: Female	DAY ON TEST: 542
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54969

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Heart | [Alveolar/Bronchiolar Carcinoma TGLs = 3-6] | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Moderate
Moderate
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| Pleura | [Alveolar/Bronchiolar Carcinoma TGLs = 4-12] | Alveolar/Bronchiolar Carcinoma | Metastatic (Lung) |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 734	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54970

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|------------------------|---|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolus | Infiltration Cellular | Histiocyte, Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Infiltration Cellular TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Ovary | | Cyst | Moderate |
| * Stomach, Forestomach | | Metaplasia | Hepatocyte, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 735	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54971

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Gallbladder

OBSERVATIONS

- | | | | |
|----------|--|--|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole
Alveolus | Hyperplasia
Hyperplasia
Infiltration Cellular
Proteinosis | Marked
Marked
Histiocyte, Marked
Marked |
| | [Infiltration Cellular TGLs = 1-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Moderate |
| * Ovary | Olfactory Epi | Cyst | Marked |
| | [Cyst TGLs = 3-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 736	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54972

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Larynx | | Metaplasia | Squamous, Mild |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | Proteinosis | Marked |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 737	TMT: 8	SEX: Female	DAY ON TEST: 645
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54973

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Thymus

INSUFFICIENT TISSUE

- * Lymph Node, Mesenteric

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|---------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Vacuolization Cytoplasmic | Mild |
| | [Vacuolization Cytoplasmic TGLs = 5-6] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3-12+13+4] | | |
| | [Hyperplasia TGLs = 6-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Marked |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 738	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54974

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- | | | | |
|------------------|-------------------------|--------------------------|---------------------|
| * Clitoral Gland | * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|------------------|-------------------------|--------------------------|---------------------|

INSUFFICIENT TISSUE

- * Thymus

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3,4-4]
[Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi
Respirat Epith | Metaplasia
Metaplasia | Respiratory, Marked
Squamous, Mild |
| * Ovary | | Cystadenoma | |
| | [Cystadenoma TGLs = 1-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 739	TMT: 8	SEX: Female	DAY ON TEST: 478
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54975

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Bronchial |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|--------------------------|---------------------|
| * Lymph Node, Mandibular | * Parathyroid Gland |
|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2,3,4-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	740	TMT:	8	SEX:	Female	DAY ON TEST:	732
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54976

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Liver |
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Ovary | * Pancreas | * Parathyroid Gland |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | | |

OBSERVATIONS

- | | | | |
|----------|------------------------------|---|---------------------------------|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 741	TMT: 8	SEX: Female	DAY ON TEST: 642
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54977

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |
| * Uterus | | | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Heart | | Necrosis | Mild |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Hepatocellular Carcinoma | |
| | [Hepatocellular Carcinoma TGLs = 3-13] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Mild |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | | Atrophy | Marked |
| | Turbinate | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM:	742	TMT:	8	SEX:	Female	DAY ON TEST:	733
		DOSE:	5.0 mg/m3	DISP:	Terminal Sacrifice	HISTO:	54978

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Bronchial |
| * Lymph Node, Mandibular | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland |
| * Ovary | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

OBSERVATIONS

- | | | | |
|----------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Cholangioma
Tension Lipidosis | Mild |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Marked
Marked
Marked |
| | [Proteinosis TGLs = 1-4] | | |
| * Nose | Turbinates
Olfactory Epi
Respirat Epith | Atrophy
Inflammation
Metaplasia
Metaplasia | Marked
Suppurative, Moderate
Respiratory, Marked
Squamous, Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 743	TMT: 8	SEX: Female	DAY ON TEST: 733
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54979

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Heart | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Moderate |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Adenoma TGLs = 1-4] | | |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 3-4] | | |
| | [Hyperplasia TGLs = 2-4] | | |
| | [Proteinosis TGLs = 4-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Pituitary Gland | Pars Distalis | Hyperplasia | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 744	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54980

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Kidney | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Trachea | * Urinary Bladder | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-----------------|---|---|--|
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | [Hepatocellular Adenoma TGLs = 3-5] | Hepatocellular Adenoma | |
| * Lung | Alveolar Epith
Bronchiole | Alveolar/Bronchiolar Carcinoma
Hyperplasia
Hyperplasia
Proteinosis | Multiple
Marked
Marked
Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-4] | | |
| * Nose | Turbinate | Atrophy
Inflammation | Marked
Suppurative, Marked |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Thyroid Gland | Follicular Cel | Hyperplasia | Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Mild |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 745	TMT: 8	SEX: Female	DAY ON TEST: 673
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54981

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|--------------------------|----------------------------|---------------------------|-----------------------------|
| * Bone | * Clitoral Gland | * Esophagus | * Eye |
| * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum |
| * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic | * Mammary Gland |
| * Pituitary Gland | * Skin | * Thyroid Gland | * Trachea |

MISSING

- | | |
|---------------|-------------------------|
| * Gallbladder | * Lymph Node, Bronchial |
|---------------|-------------------------|

INSUFFICIENT TISSUE

- * Parathyroid Gland

OBSERVATIONS

- | | | | |
|-------------------|--------------------------------------|--|-------------------|
| * Adrenal Cortex | | Lymphoma Malignant | |
| * Adrenal Medulla | | Lymphoma Malignant | |
| * Bone Marrow | | Lymphoma Malignant | |
| * Brain | | Lymphoma Malignant | |
| * Harderian Gland | | Lymphoma Malignant | |
| * Heart | | Lymphoma Malignant | |
| * Kidney | | Lymphoma Malignant
Nephropathy | Minimal |
| | [Lymphoma Malignant TGLs = 5-6] | | |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Liver | | Lymphoma Malignant | |
| | [Lymphoma Malignant TGLs = 12-5] | | |
| * Lung | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia
Hyperplasia | Marked
Marked |
| | [Proteinosis TGLs = 3-4] | Lymphoma Malignant
Proteinosis | Marked |
| Lymph Node | Deep Cervical
Pancreatic
Renal | Lymphoma Malignant
Lymphoma Malignant
Lymphoma Malignant | |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 745	TMT: 8	SEX: Female	DAY ON TEST: 673
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54981

ORGAN AND ACCOUNTABLE SITE STATUS

	Lumbar	Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 2-12]		
	[Lymphoma Malignant TGLs = 8-13]		
	[Lymphoma Malignant TGLs = 9-14]		
	[Lymphoma Malignant TGLs = 10-15]		
* Lymph Node, Mandibular		Lymphoma Malignant	
* Lymph Node, Mediastinal		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 4-3]		
* Lymph Node, Mesenteric		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 11-7]		
* Nose	Turbinate	Atrophy	Marked
		Inflammation	Suppurative, Moderate
	Olfactory Epi	Metaplasia	Respiratory, Marked
* Ovary		Cyst	Mild
	[Lymphoma Malignant TGLs = 13-8]	Lymphoma Malignant	
* Pancreas		Lymphoma Malignant	
* Salivary Glands		Lymphoma Malignant	
* Spleen		Lymphoma Malignant	
	[Lymphoma Malignant TGLs = 6,7-5]		
* Stomach, Forestomach		Hyperplasia	Squamous, Mild
		Lymphoma Malignant	
* Stomach, Glandular		Lymphoma Malignant	
* Thymus		Lymphoma Malignant	
* Urinary Bladder		Lymphoma Malignant	
* Uterus	Endometrium	Hyperplasia	Cystic, Moderate

PRIMARY CAUSE OF DEATH - Lymph Node, Mesenteric Lymphoma Malignant

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 746	TMT: 8	SEX: Female	DAY ON TEST: 593
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54982

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Ovary |
| * Pancreas | * Parathyroid Gland | * Pituitary Gland | * Salivary Glands |
| * Skin | * Spleen | * Stomach, Forestomach | * Stomach, Glandular |
| * Thymus | * Thyroid Gland | * Trachea | * Urinary Bladder |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1-12] | | |
| | [Proteinosis TGLs = 2-4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 747	TMT: 8	SEX: Female	DAY ON TEST: 562
	DOSE: 5.0 mg/m3	DISP: Moribund Sacrifice	HISTO: 54983

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|---------------------------|-----------------------------|--------------------------|----------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon |
| * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum |
| * Islets, Pancreatic | * Kidney | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- | | |
|-------------------------|--------------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular |
|-------------------------|--------------------------|

OBSERVATIONS

- | | | | |
|----------|--|--------------------------------|-----------------------|
| * Heart | | Cardiomyopathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Bronchiole | Hyperplasia | Marked |
| | Alveolar Epith | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2-12+4] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Uterus | Endometrium | Hyperplasia | Cystic, Moderate |

PRIMARY CAUSE OF DEATH - Lung Alveolar/Bronchiolar Carcinoma

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 748	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54984

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|-----------------------------|--------------------------|----------------------------|---------------------------|
| * Adrenal Medulla | * Bone | * Bone Marrow | * Brain |
| * Clitoral Gland | * Esophagus | * Eye | * Gallbladder |
| * Harderian Gland | * Intestine Large, Cecum | * Intestine Large, Colon | * Intestine Large, Rectum |
| * Intestine Small, Duodenum | * Intestine Small, Ileum | * Intestine Small, Jejunum | * Islets, Pancreatic |
| * Liver | * Lymph Node, Bronchial | * Lymph Node, Mediastinal | * Lymph Node, Mesenteric |
| * Mammary Gland | * Pancreas | * Parathyroid Gland | * Pituitary Gland |
| * Salivary Glands | * Skin | * Spleen | * Stomach, Forestomach |
| * Stomach, Glandular | * Thymus | * Thyroid Gland | * Trachea |
| * Urinary Bladder | | | |

MISSING

- * Lymph Node, Mandibular

OBSERVATIONS

- | | | | |
|------------------|---|--------------------------------|-----------------------|
| * Adrenal Cortex | | Hyperplasia | Mild |
| * Heart | | Cardiomyopathy | Minimal |
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith
Bronchiole | Hyperplasia | Marked |
| | | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Hyperplasia TGLs = 1-4] | | |
| | [Proteinosis TGLs = 3-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 4-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |
| * Ovary | | Cyst | Mild |
| * Uterus | Endometrium | Hyperplasia | Cystic, Marked |

* PROTOCOL REQUIRED TISSUE

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 749	TMT: 8	SEX: Female	DAY ON TEST: 732
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54985

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|---------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mediastinal |
| * Lymph Node, Mesenteric | * Mammary Gland | * Ovary | * Pancreas |
| * Pituitary Gland | * Salivary Glands | * Skin | * Spleen |
| * Stomach, Forestomach | * Stomach, Glandular | * Thymus | * Thyroid Gland |
| * Trachea | * Urinary Bladder | * Uterus | |

MISSING

- | | | |
|-------------------------|--------------------------|---------------------|
| * Lymph Node, Bronchial | * Lymph Node, Mandibular | * Parathyroid Gland |
|-------------------------|--------------------------|---------------------|

OBSERVATIONS

- | | | | |
|-----------|---|--------------------------------|-----------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Adenoma | |
| | | Alveolar/Bronchiolar Carcinoma | |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 2-4] | | |
| | [Proteinosis TGLs = 1-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 3-6] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Moderate |
| | Olfactory Epi | Metaplasia | Respiratory, Marked |

TDMS No. 60311 - 06

Test Type: CHRONIC

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P14: INDIVIDUAL ANIMAL PATHOLOGY DATA

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 12/10/2008

Time Report Requested: 14:04:27

First Dose M/F: 05/15/06 / 05/15/06

Lab: BNW

ANIMAL NUM: 750	TMT: 8	SEX: Female	DAY ON TEST: 731
	DOSE: 5.0 mg/m3	DISP: Terminal Sacrifice	HISTO: 54986

ORGAN AND ACCOUNTABLE SITE STATUS

NORMAL

- | | | | |
|----------------------------|---------------------------|-----------------------------|--------------------------|
| * Adrenal Cortex | * Adrenal Medulla | * Bone | * Bone Marrow |
| * Brain | * Clitoral Gland | * Esophagus | * Eye |
| * Gallbladder | * Harderian Gland | * Heart | * Intestine Large, Cecum |
| * Intestine Large, Colon | * Intestine Large, Rectum | * Intestine Small, Duodenum | * Intestine Small, Ileum |
| * Intestine Small, Jejunum | * Islets, Pancreatic | * Liver | * Lymph Node, Mandibular |
| * Lymph Node, Mediastinal | * Lymph Node, Mesenteric | * Mammary Gland | * Pancreas |
| * Parathyroid Gland | * Pituitary Gland | * Salivary Glands | * Skin |
| * Spleen | * Stomach, Forestomach | * Stomach, Glandular | * Thymus |
| * Thyroid Gland | * Trachea | * Urinary Bladder | |

MISSING

- * Lymph Node, Bronchial

OBSERVATIONS

- | | | | |
|-----------|---|--------------------------------|--------------------------|
| * Kidney | | Nephropathy | Minimal |
| * Larynx | | Metaplasia | Squamous, Minimal |
| * Lung | | Alveolar/Bronchiolar Carcinoma | Multiple |
| | Alveolar Epith | Hyperplasia | Marked |
| | Bronchiole | Hyperplasia | Marked |
| | | Inflammation | Chronic Active, Moderate |
| | | Proteinosis | Marked |
| | [Alveolar/Bronchiolar Carcinoma TGLs = 1,2,3,4-4] | | |
| Mesentery | Fat | Necrosis | Mild |
| | [Necrosis TGLs = 5,6-6+12] | | |
| * Nose | Turbinate | Atrophy | Marked |
| | | Inflammation | Suppurative, Mild |
| | Olfactory Epi | Metaplasia | Respiratory, Moderate |
| * Ovary | | Cyst | Mild |
| | [Cyst TGLs = 7-8] | | |
| * Uterus | Endometrium | Hyperplasia | Cystic, Minimal |

*** END OF REPORT ***