

**Experiment Number:** 60311 - 04  
**Test Type:** 90-DAY  
**Route:** RESPIRATORY EXPOSURE WHOLE BODY  
**Species/Strain:** MICE/B6C3F1

**P04: NEOPLASMS BY INDIVIDUAL ANIMAL**  
Cobalt  
**CAS Number:** 7440-48-4

**Date Report Requested:** 08/16/2012  
**Time Report Requested:** 09:00:49  
**First Dose M/F:** 03/07/05 / 03/07/05  
**Lab:** BNW

F2\_M3

**NTP Study Number:** C60311  
**Lock Date:** 11/29/2005  
**Cage Range:** ALL  
**Date Range:** ALL  
**Reasons For Removal:** ALL  
**Removal Date Range:** ALL  
**Treatment Groups:** Include ALL  
**Study Gender:** Both  
**TDMSE Version:** 2.6.0.0\_007  
**PWG Approval Date:** NONE

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Lab: BNW

|   |             |   |   |   |   |   |   |   |   |   |                 |
|---|-------------|---|---|---|---|---|---|---|---|---|-----------------|
| <b>B6C3F1 MICE MALE</b><br><b>control</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |                 |
|   |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |                 |
|   | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |                 |
|   |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                 |
|   |             |   |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |

**ALIMENTARY SYSTEM**

|                           |   |   |   |   |   |   |   |   |   |   |           |
|---------------------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Esophagus                 | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Gallbladder               | M | + | + | + | + | + | + | + | + | + | <b>9</b>  |
| Intestine Large, Cecum    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Colon    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Rectum   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Ileum    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Jejunum  | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Liver                     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Pancreas                  | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Salivary Glands           | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Forestomach      | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Glandular        | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**CARDIOVASCULAR SYSTEM**

|       |   |   |   |   |   |   |   |   |   |   |           |
|-------|---|---|---|---|---|---|---|---|---|---|-----------|
| Heart | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|-------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

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|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
| <b>control</b>          | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

**ENDOCRINE SYSTEM**

|                    |   |   |   |   |   |   |   |   |   |   |           |
|--------------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Adrenal Cortex     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Adrenal Medulla    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Islets, Pancreatic | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Parathyroid Gland  | M | M | + | + | + | M | M | + | M | M | <b>4</b>  |
| Pituitary Gland    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Thyroid Gland      | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|                 |   |   |   |   |   |   |   |   |   |   |           |
|-----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Epididymis      | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Preputial Gland | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Prostate        | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Seminal Vesicle | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Testes          | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**HEMATOPOIETIC SYSTEM**

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

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Cobalt

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First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE MALE<br>control   | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * TOTALS |
|-------------------------------|-------------|---|---|---|---|---|---|---|---|---|----------|
|                               | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                               |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |          |
|                               |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |          |
|                               |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                               |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                               |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                               |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |          |
|                               |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0        |
| Bone Marrow                   |             | + | + | + | + | + | + | + | + | + | 10       |
| Lymph Node, Bronchial         |             | + | M | M | M | M | + | + | + | M | 5        |
| Lymph Node, Mandibular        |             | M | M | M | + | + | M | M | M | + | 4        |
| Lymph Node, Mediastinal       |             | + | M | M | M | M | M | M | M | M | 1        |
| Lymph Node, Mesenteric        |             | + | + | + | + | + | + | + | + | + | 10       |
| Spleen                        |             | + | + | + | + | + | + | + | + | + | 10       |
| Thymus                        |             | + | + | + | + | + | + | + | + | + | 10       |
| <b>INTEGUMENTARY SYSTEM</b>   |             |   |   |   |   |   |   |   |   |   |          |
| Mammary Gland                 |             | M | M | M | M | M | M | M | M | M | 0        |
| Skin                          |             | + | + | + | + | + | + | + | + | + | 10       |
| <b>MUSCULOSKELETAL SYSTEM</b> |             |   |   |   |   |   |   |   |   |   |          |
| Bone                          |             | + | + | + | + | + | + | + | + | + | 10       |
| <b>NERVOUS SYSTEM</b>         |             |   |   |   |   |   |   |   |   |   |          |
| Brain                         |             | + | + | + | + | + | + | + | + | + | 10       |
| <b>RESPIRATORY SYSTEM</b>     |             |   |   |   |   |   |   |   |   |   |          |
| Larynx                        |             | + | + | + | + | + | + | + | + | + | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

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Lab: BNW

| B6C3F1 MICE MALE<br>control  | DAY ON TEST | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |    |
|------------------------------|-------------|-----------------|---|---|---|---|---|---|---|---|----|
|                              | ANIMAL ID   | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |    |
|                              |             | 5               | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |    |
|                              |             | 1               | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0  |
|                              |             | <b>* TOTALS</b> |   |   |   |   |   |   |   |   |    |
| Lung                         |             | +               | + | + | + | + | + | + | + | + | 10 |
| Nose                         |             | +               | + | + | + | + | + | + | + | + | 10 |
| Trachea                      |             | +               | + | + | + | + | + | + | + | + | 10 |
| <b>SPECIAL SENSES SYSTEM</b> |             |                 |   |   |   |   |   |   |   |   |    |
| Eye                          |             | +               | + | + | + | + | + | + | + | + | 10 |
| Harderian Gland              |             | +               | + | + | + | + | + | + | + | + | 10 |
| <b>URINARY SYSTEM</b>        |             |                 |   |   |   |   |   |   |   |   |    |
| Kidney                       |             | +               | + | + | + | + | + | + | + | + | 10 |
| Urinary Bladder              |             | +               | + | + | + | + | + | + | + | + | 10 |
| <b>SYSTEMIC LESIONS</b>      |             |                 |   |   |   |   |   |   |   |   |    |
| Multiple Organ               |             | +               | + | + | + | + | + | + | + | + | 10 |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
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|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
| <b>0.625 mg/m3</b>      | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|            |   |   |   |   |   |   |   |   |   |   |           |
|------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Epididymis | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Testes     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

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|   |             |   |   |   |   |   |   |   |   |   |                 |
|---|-------------|---|---|---|---|---|---|---|---|---|-----------------|
| <b>B6C3F1 MICE MALE</b><br><b>0.625 mg/m3</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |                 |
|   |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |                 |
|   | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |                 |
|   |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                 |
|   |             |   |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |

NONE

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
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|  |             |   |   |   |   |   |   |   |   |   |                 |
|--|-------------|---|---|---|---|---|---|---|---|---|-----------------|
| <b>B6C3F1 MICE MALE</b><br><br><b>1.25 mg/m3</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|  |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|  |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |                 |
|  |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |                 |
|  | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|  |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|  |             | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |                 |
|  |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |                 |
|  |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                 |
|  |             |   |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|            |   |   |   |   |   |   |   |   |   |   |           |
|------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Epididymis | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Testes     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
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|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| <b>1.25 mg/m3</b>       | ANIMAL ID   | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |   |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

NONE

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
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|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
| <b>2.5 mg/m3</b>        | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|            |   |   |   |   |   |   |   |   |   |   |           |
|------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Epididymis | + | + | + | + | + | M | + | + | + | + | <b>9</b>  |
| Testes     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                         |             |   |   |   |   |   |   |   |   |                 |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|-----------------|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9               |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5               |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5               |   |
| <b>2.5 mg/m3</b>        | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9               | 0 |
|                         |             |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |   |

NONE

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
| <b>5 mg/m3</b>          | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|            |   |   |   |   |   |   |   |   |   |   |           |
|------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Epididymis | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Testes     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                         |             |   |   |   |   |   |   |   |   |                 |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|-----------------|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9               |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5               |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5               |   |
| <b>5 mg/m3</b>          | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                         |             | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8               |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               | 1 |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9               | 0 |
|                         |             |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |   |

NONE

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|  |             |                 |   |   |   |   |   |   |   |   |   |  |
|--|-------------|-----------------|---|---|---|---|---|---|---|---|---|--|
| <b>B6C3F1 MICE MALE</b><br><b>10 mg/m3</b> | DAY ON TEST | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|  |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|  |             | 9               | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |  |
|  |             | 5               | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |  |
|  | ANIMAL ID   | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|  |             | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  |
|  |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|  |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  |
|  |             | 1               | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |  |
|  |             | <b>* TOTALS</b> |   |   |   |   |   |   |   |   |   |  |

**ALIMENTARY SYSTEM**

|                           |   |   |   |   |   |   |   |   |   |   |           |
|---------------------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Esophagus                 | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Gallbladder               | + | + | + | + | M | + | + | + | + | + | <b>9</b>  |
| Intestine Large, Cecum    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Colon    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Rectum   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Ileum    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Jejunum  | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Liver                     | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Pancreas                  | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Salivary Glands           | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Forestomach      | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Glandular        | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**CARDIOVASCULAR SYSTEM**

|              |  |  |  |  |  |  |  |  |  |  |          |
|--------------|--|--|--|--|--|--|--|--|--|--|----------|
| Blood Vessel |  |  |  |  |  |  |  |  |  |  | <b>1</b> |
|--------------|--|--|--|--|--|--|--|--|--|--|----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE MALE<br>10 mg/m3 | DAY ON TEST           |                       |                       |                       |                       |                       |                       |                       |                       |                       | ANIMAL ID |           |
|------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|-----------|
|                              | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           |           |           |
|                              | 0<br>1<br>0<br>0<br>1 | 0<br>1<br>0<br>0<br>2 | 0<br>1<br>0<br>0<br>3 | 0<br>1<br>0<br>0<br>4 | 0<br>1<br>0<br>0<br>5 | 0<br>1<br>0<br>0<br>6 | 0<br>1<br>0<br>0<br>7 | 0<br>1<br>0<br>0<br>8 | 0<br>1<br>0<br>0<br>9 | 0<br>1<br>0<br>0<br>0 |           |           |
|                              | <b>* TOTALS</b>       |                       |                       |                       |                       |                       |                       |                       |                       |                       |           |           |
| Heart                        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| <b>ENDOCRINE SYSTEM</b>      |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |           |           |
| Adrenal Cortex               | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| Adrenal Medulla              | +                     | +                     | I                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>9</b>  |
| Islets, Pancreatic           | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| Parathyroid Gland            | +                     | M                     | +                     | M                     | +                     | +                     | +                     | M                     | M                     | +                     |           | <b>6</b>  |
| Pituitary Gland              | I                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>9</b>  |
| Thyroid Gland                | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| <b>GENERAL BODY SYSTEM</b>   |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |           |           |
| NONE                         |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |           |           |
| <b>GENITAL SYSTEM</b>        |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |           |           |
| Coagulating Gland            |                       |                       | +                     |                       |                       |                       |                       |                       |                       |                       |           | <b>1</b>  |
| Epididymis                   | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| Preputial Gland              | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| Prostate                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |
| Seminal Vesicle              | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     |           | <b>10</b> |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE MALE<br>10 mg/m3  | DAY ON TEST           |                       |                       |                       |                       |                       |                       |                       |                       |                       | * TOTALS |
|-------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
|                               | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           | 0<br>9<br>5           |          |
|                               | ANIMAL ID             |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
|                               | 0<br>1<br>0<br>0<br>1 | 0<br>1<br>0<br>0<br>2 | 0<br>1<br>0<br>0<br>3 | 0<br>1<br>0<br>0<br>4 | 0<br>1<br>0<br>0<br>5 | 0<br>1<br>0<br>0<br>6 | 0<br>1<br>0<br>0<br>7 | 0<br>1<br>0<br>0<br>8 | 0<br>1<br>0<br>0<br>9 | 0<br>1<br>0<br>0<br>0 |          |
| Testes                        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>HEMATOPOIETIC SYSTEM</b>   |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Bone Marrow                   | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Lymph Node, Bronchial         | M                     | +                     | +                     | +                     | M                     | +                     | M                     | +                     | +                     | M                     | 6        |
| Lymph Node, Mandibular        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | M                     | M                     | +                     | 8        |
| Lymph Node, Mediastinal       | +                     | M                     | M                     | M                     | +                     | +                     | M                     | +                     | M                     | +                     | 5        |
| Lymph Node, Mesenteric        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Spleen                        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Thymus                        | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>INTEGUMENTARY SYSTEM</b>   |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Mammary Gland                 | M                     | M                     | M                     | M                     | M                     | M                     | M                     | M                     | M                     | M                     | 0        |
| Skin                          | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>MUSCULOSKELETAL SYSTEM</b> |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Bone                          | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>NERVOUS SYSTEM</b>         |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Brain                         | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically



Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                         |             |   |   |   |   |   |   |   |   |   |   |
|-------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE MALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
| <b>10 mg/m3</b>         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                         |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                         | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                         |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |   |
|                         |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>         |             |   |   |   |   |   |   |   |   |   |   |

**RESPIRATORY SYSTEM**

|         |   |   |   |   |   |   |   |   |   |   |           |
|---------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx  | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose    | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Trachea | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

|                 |   |   |   |   |   |   |   |   |   |   |           |
|-----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Eye             | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Harderian Gland | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**URINARY SYSTEM**

|                 |   |   |   |   |   |   |   |   |   |   |           |
|-----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Kidney          | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Urinary Bladder | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\*\*\* END OF MALE DATA \*\*\*

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|   |             |   |   |   |   |   |   |   |   |   |                 |
|---|-------------|---|---|---|---|---|---|---|---|---|-----------------|
| <b>B6C3F1 MICE FEMALE</b><br><b>control</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |                 |
|   |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |                 |
|   | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |                 |
|   |             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |                 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |                 |
|   |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |                 |
|   |             |   |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |

**ALIMENTARY SYSTEM**

|                           |   |   |   |   |   |   |   |   |   |           |
|---------------------------|---|---|---|---|---|---|---|---|---|-----------|
| Esophagus                 | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Gallbladder               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Cecum    | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Colon    | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Large, Rectum   | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Ileum    | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Intestine Small, Jejunum  | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Liver                     | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Pancreas                  | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Salivary Glands           | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Forestomach      | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Stomach, Glandular        | + | + | + | + | + | + | + | + | + | <b>10</b> |

**CARDIOVASCULAR SYSTEM**

|              |  |  |  |  |  |  |  |  |  |          |
|--------------|--|--|--|--|--|--|--|--|--|----------|
| Blood Vessel |  |  |  |  |  |  |  |  |  | <b>1</b> |
|--------------|--|--|--|--|--|--|--|--|--|----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE FEMALE<br>control | DAY ON TEST | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |           |
|-------------------------------|-------------|-----------------|---|---|---|---|---|---|---|---|-----------|
|                               | ANIMAL ID   | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |           |
|                               |             | 9               | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |           |
|                               |             | 6               | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |           |
|                               |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |           |
|                               |             | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |           |
|                               |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |           |
|                               |             | 1               | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0         |
|                               |             | <b>* TOTALS</b> |   |   |   |   |   |   |   |   |           |
| Heart                         |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>ENDOCRINE SYSTEM</b>       |             |                 |   |   |   |   |   |   |   |   |           |
| Adrenal Cortex                |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| Adrenal Medulla               |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| Islets, Pancreatic            |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| Parathyroid Gland             |             | +               | + | + | + | + | M | + | + | M | <b>8</b>  |
| Pituitary Gland               |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| Thyroid Gland                 |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>GENERAL BODY SYSTEM</b>    |             |                 |   |   |   |   |   |   |   |   |           |
| NONE                          |             |                 |   |   |   |   |   |   |   |   |           |
| <b>GENITAL SYSTEM</b>         |             |                 |   |   |   |   |   |   |   |   |           |
| Clitoral Gland                |             | M               | M | + | + | + | M | + | + | + | <b>7</b>  |
| Ovary                         |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| Uterus                        |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>HEMATOPOIETIC SYSTEM</b>   |             |                 |   |   |   |   |   |   |   |   |           |
| Bone Marrow                   |             | +               | + | + | + | + | + | + | + | + | <b>10</b> |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P04: NEOPLASMS BY INDIVIDUAL ANIMAL**

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE FEMALE<br>control | DAY ON TEST      |                  |                  |                  |                  |                  |                  |                  |                  |                  | * TOTALS |
|-------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
|                               | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      | 0<br>9<br>6      |          |
|                               | ANIMAL ID        |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
|                               | 0<br>1<br>0<br>1 | 0<br>1<br>0<br>2 | 0<br>1<br>0<br>3 | 0<br>1<br>0<br>4 | 0<br>1<br>0<br>5 | 0<br>1<br>0<br>6 | 0<br>1<br>0<br>7 | 0<br>1<br>0<br>8 | 0<br>1<br>0<br>9 | 0<br>1<br>0<br>0 |          |
| Lymph Node, Bronchial         | +                | M                | M                | +                | +                | +                | +                | M                | +                | M                | 6        |
| Lymph Node, Mandibular        | +                | +                | +                | +                | M                | M                | +                | +                | +                | +                | 8        |
| Lymph Node, Mediastinal       | M                | M                | M                | M                | M                | M                | M                | M                | M                | +                | 1        |
| Lymph Node, Mesenteric        | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Spleen                        | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Thymus                        | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>INTEGUMENTARY SYSTEM</b>   |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Mammary Gland                 | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Skin                          | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>MUSCULOSKELETAL SYSTEM</b> |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Bone                          | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>NERVOUS SYSTEM</b>         |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Brain                         | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>RESPIRATORY SYSTEM</b>     |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Larynx                        | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Lung                          | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE FEMALE<br>control | DAY ON TEST | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |           |
|-------------------------------|-------------|-----------------|---|---|---|---|---|---|---|---|---|-----------|
|                               | ANIMAL ID   | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |           |
|                               |             | 9               | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |           |
|                               |             | 6               | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |           |
|                               |             | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |   |           |
|                               |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |   |           |
|                               |             | 1               | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |           |
|                               |             | <b>* TOTALS</b> |   |   |   |   |   |   |   |   |   |           |
| Nose                          |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Pleura                        |             |                 |   |   |   |   |   | + |   |   |   | <b>1</b>  |
| Trachea                       |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>SPECIAL SENSES SYSTEM</b>  |             |                 |   |   |   |   |   |   |   |   |   |           |
| Eye                           |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Harderian Gland               |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>URINARY SYSTEM</b>         |             |                 |   |   |   |   |   |   |   |   |   |           |
| Kidney                        |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Urinary Bladder               |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |
| <b>SYSTEMIC LESIONS</b>       |             |                 |   |   |   |   |   |   |   |   |   |           |
| Multiple Organ                |             | +               | + | + | + | + | + | + | + | + | + | <b>10</b> |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                           |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |
| <b>0.625 mg/m3</b>        | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

NONE

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

NONE

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                           |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |
| <b>0.625 mg/m3</b>        | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |   |

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
| <b>1.25 mg/m3</b>         | ANIMAL ID   | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |   |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

NONE

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

NONE

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically



Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
| <b>1.25 mg/m3</b>         |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |   |
|                           |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |   |
|                           | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |   |
|                           |             | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |   |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |   |

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
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Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P04: NEOPLASMS BY INDIVIDUAL ANIMAL**

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| <b>2.5 mg/m3</b>          | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|                           |             | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |   |   |   |   |   |   |   |   |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

**ALIMENTARY SYSTEM**

|                           |   |   |
|---------------------------|---|---|
| Esophagus                 | + | 1 |
| Gallbladder               | + | 1 |
| Intestine Large, Cecum    | + | 1 |
| Intestine Large, Colon    | + | 1 |
| Intestine Large, Rectum   | + | 1 |
| Intestine Small, Duodenum | + | 1 |
| Intestine Small, Ileum    | + | 1 |
| Intestine Small, Jejunum  | + | 1 |
| Liver                     | + | 1 |
| Pancreas                  | + | 1 |
| Salivary Glands           | + | 1 |
| Stomach, Forestomach      | + | 1 |
| Stomach, Glandular        | + | 1 |

**CARDIOVASCULAR SYSTEM**

|       |   |   |
|-------|---|---|
| Heart | + | 1 |
|-------|---|---|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

|   |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|-------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| <b>B6C3F1 MICE FEMALE</b><br><b>2.5 mg/m3</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|   |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
|   |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |
|   | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
|   |             | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
|   |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
|   |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |   |   |   |   |   |   |   |   |   |
|   |             |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

\* TOTALS

**ENDOCRINE SYSTEM**

|                    |  |   |   |
|--------------------|--|---|---|
| Adrenal Cortex     |  | + | 1 |
| Adrenal Medulla    |  | + | 1 |
| Islets, Pancreatic |  | + | 1 |
| Parathyroid Gland  |  | + | 1 |
| Pituitary Gland    |  | + | 1 |
| Thyroid Gland      |  | + | 1 |

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

|                |  |   |   |
|----------------|--|---|---|
| Clitoral Gland |  | + | 1 |
| Ovary          |  | + | 1 |
| Uterus         |  | + | 1 |

**HEMATOPOIETIC SYSTEM**

|                       |  |   |   |
|-----------------------|--|---|---|
| Bone Marrow           |  | + | 1 |
| Lymph Node, Bronchial |  | + | 1 |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

**P04: NEOPLASMS BY INDIVIDUAL ANIMAL**

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE FEMALE<br>2.5 mg/m3 | DAY ON TEST |       |       |       |       |       |       |       |       |       | * TOTALS |    |
|---------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|----------|----|
|                                 | 0096        | 0096  | 0096  | 0096  | 0096  | 0096  | 0096  | 0096  | 0096  | 0096  |          |    |
|                                 | ANIMAL ID   |       |       |       |       |       |       |       |       |       |          |    |
|                                 | 00701       | 00702 | 00703 | 00704 | 00705 | 00706 | 00707 | 00708 | 00709 | 00710 |          |    |
| Lymph Node, Mandibular          |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| Lymph Node, Mediastinal         |             |       |       |       |       |       |       |       |       |       | M        | 0  |
| Lymph Node, Mesenteric          |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| Spleen                          |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| Thymus                          |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| <b>INTEGUMENTARY SYSTEM</b>     |             |       |       |       |       |       |       |       |       |       |          |    |
| Mammary Gland                   |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| Skin                            |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| <b>MUSCULOSKELETAL SYSTEM</b>   |             |       |       |       |       |       |       |       |       |       |          |    |
| Bone                            |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| <b>NERVOUS SYSTEM</b>           |             |       |       |       |       |       |       |       |       |       |          |    |
| Brain                           |             |       |       |       |       |       |       |       |       |       | +        | 1  |
| <b>RESPIRATORY SYSTEM</b>       |             |       |       |       |       |       |       |       |       |       |          |    |
| Larynx                          | +           | +     | +     | +     | +     | +     | +     | +     | +     | +     |          | 10 |
| Lung                            | +           | +     | +     | +     | +     | +     | +     | +     | +     | +     |          | 10 |
| Nose                            | +           | +     | +     | +     | +     | +     | +     | +     | +     | +     |          | 10 |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04

Test Type: 90-DAY

Route: RESPIRATORY EXPOSURE WHOLE BODY

Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL

Cobalt

CAS Number: 7440-48-4

Date Report Requested: 08/16/2012

Time Report Requested: 09:00:49

First Dose M/F: 03/07/05 / 03/07/05

Lab: BNW

| B6C3F1 MICE FEMALE<br>2.5 mg/m3 | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * TOTALS |
|---------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|----------|
|                                 | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                                 |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |          |
|                                 |             | 6 | 6 | 6 | 6 | 6 | 6 | 4 | 6 | 6 | 6 |          |
|                                 |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                                 |             | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |          |
|                                 |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |          |
|                                 |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |          |
| Trachea                         |             |   |   |   |   |   |   |   | + |   |   | 1        |
| <b>SPECIAL SENSES SYSTEM</b>    |             |   |   |   |   |   |   |   |   |   |   |          |
| Eye                             |             |   |   |   |   |   |   |   |   | + |   | 1        |
| Harderian Gland                 |             |   |   |   |   |   |   |   |   | + |   | 1        |
| <b>URINARY SYSTEM</b>           |             |   |   |   |   |   |   |   |   |   |   |          |
| Kidney                          |             |   |   |   |   |   |   |   |   |   | + | 1        |
| Urinary Bladder                 |             |   |   |   |   |   |   |   |   |   | + | 1        |
| <b>SYSTEMIC LESIONS</b>         |             |   |   |   |   |   |   |   |   |   |   |          |
| Multiple Organ                  |             | + | + | + | + | + | + | + | + | + | + | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
+ .. Tissue examined microscopically  
X .. Lesion present  
I .. Insufficient tissue

M .. Missing tissue  
A .. Autolysis precludes evaluation  
BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |                 |   |
|---------------------------|-------------|---|---|---|---|---|---|---|---|-----------------|---|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9               |   |
|                           |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6               |   |
| <b>5 mg/m3</b>            | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               |   |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9               |   |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0               | 1 |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9               | 0 |
|                           |             |   |   |   |   |   |   |   |   | <b>* TOTALS</b> |   |

**ALIMENTARY SYSTEM**

NONE

**CARDIOVASCULAR SYSTEM**

NONE

**ENDOCRINE SYSTEM**

NONE

**GENERAL BODY SYSTEM**

NONE

**GENITAL SYSTEM**

NONE

**HEMATOPOIETIC SYSTEM**

NONE

**INTEGUMENTARY SYSTEM**

NONE

**MUSCULOSKELETAL SYSTEM**

NONE

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

|                           |             |   |   |   |   |   |   |   |   |   |  |
|---------------------------|-------------|---|---|---|---|---|---|---|---|---|--|
| <b>B6C3F1 MICE FEMALE</b> | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
| <b>5 mg/m3</b>            |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |  |
|                           |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |  |
|                           | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  |
|                           |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |  |
|                           |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  |
|                           |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |  |
| <b>* TOTALS</b>           |             |   |   |   |   |   |   |   |   |   |  |

**NERVOUS SYSTEM**

NONE

**RESPIRATORY SYSTEM**

|        |   |   |   |   |   |   |   |   |   |   |           |
|--------|---|---|---|---|---|---|---|---|---|---|-----------|
| Larynx | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Lung   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
| Nose   | + | + | + | + | + | + | + | + | + | + | <b>10</b> |

**SPECIAL SENSES SYSTEM**

NONE

**URINARY SYSTEM**

NONE

**SYSTEMIC LESIONS**

|                |   |   |   |   |   |   |   |   |   |   |           |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|
| Multiple Organ | + | + | + | + | + | + | + | + | + | + | <b>10</b> |
|----------------|---|---|---|---|---|---|---|---|---|---|-----------|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE FEMALE<br>10 mg/m3 | DAY ON TEST | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | * TOTALS |
|--------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|----------|
|                                | ANIMAL ID   | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                                |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                                |             | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |          |
|                                |             | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |          |
|                                |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |          |
|                                |             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |          |
|                                |             | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |          |
|                                |             | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |          |
|                                |             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 |          |

**ALIMENTARY SYSTEM**

|                           |   |   |   |   |   |   |   |   |   |   |    |
|---------------------------|---|---|---|---|---|---|---|---|---|---|----|
| Esophagus                 | + | + | + | + | + | + | + | + | + | + | 10 |
| Gallbladder               | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Cecum    | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Colon    | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Large, Rectum   | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Duodenum | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Ileum    | + | + | + | + | + | + | + | + | + | + | 10 |
| Intestine Small, Jejunum  | + | + | + | + | + | + | + | + | + | + | 10 |
| Liver                     | + | + | + | + | + | + | + | + | + | + | 10 |
| Pancreas                  | + | + | + | + | + | + | + | + | + | + | 10 |
| Salivary Glands           | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Forestomach      | + | + | + | + | + | + | + | + | + | + | 10 |
| Stomach, Glandular        | + | + | + | + | + | + | + | + | + | + | 10 |

**CARDIOVASCULAR SYSTEM**

|              |   |   |
|--------------|---|---|
| Blood Vessel | + | 1 |
|--------------|---|---|

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically



Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE FEMALE<br>10 mg/m3 | DAY ON TEST           |                       |                       |                       |                       |                       |                       |                       |                       |                       | * TOTALS |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|
|                                | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           | 0<br>9<br>6           |          |
|                                | ANIMAL ID             |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
|                                | 0<br>1<br>1<br>0<br>1 | 0<br>1<br>1<br>0<br>2 | 0<br>1<br>1<br>0<br>3 | 0<br>1<br>1<br>0<br>4 | 0<br>1<br>1<br>0<br>5 | 0<br>1<br>1<br>0<br>6 | 0<br>1<br>1<br>0<br>7 | 0<br>1<br>1<br>0<br>8 | 0<br>1<br>1<br>0<br>9 | 0<br>1<br>1<br>0<br>0 |          |
| Heart                          | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>ENDOCRINE SYSTEM</b>        |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Adrenal Cortex                 | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Adrenal Medulla                | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Islets, Pancreatic             | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Parathyroid Gland              | M                     | +                     | M                     | +                     | M                     | +                     | +                     | M                     | +                     | +                     | 6        |
| Pituitary Gland                | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Thyroid Gland                  | +                     | +                     | M                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 9        |
| <b>GENERAL BODY SYSTEM</b>     |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| NONE                           |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| <b>GENITAL SYSTEM</b>          |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Clitoral Gland                 | +                     | +                     | M                     | +                     | +                     | M                     | +                     | M                     | +                     | +                     | 7        |
| Ovary                          | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| Uterus                         | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |
| <b>HEMATOPOIETIC SYSTEM</b>    |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |          |
| Bone Marrow                    | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | +                     | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE FEMALE<br>10 mg/m3 | DAY ON TEST      |                  |                  |                  |                  |                  |                  |                  |                  |                  | * TOTALS |
|--------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
|                                | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 | 0<br>0<br>9<br>6 |          |
| ANIMAL ID                      | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                |          |
|                                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                |          |
|                                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                | 1                |          |
|                                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 0                | 1                |          |
|                                | 1                | 2                | 3                | 4                | 5                | 6                | 7                | 8                | 9                | 0                |          |
| Lymph Node, Bronchial          | +                | M                | +                | M                | +                | +                | +                | +                | +                | I                | 7        |
| Lymph Node, Mandibular         | +                | +                | M                | +                | +                | +                | M                | +                | M                | +                | 7        |
| Lymph Node, Mediastinal        | +                | M                | M                | M                | M                | M                | +                | M                | +                | +                | 4        |
| Lymph Node, Mesenteric         | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Spleen                         | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Thymus                         | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>INTEGUMENTARY SYSTEM</b>    |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Mammary Gland                  | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Skin                           | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>MUSCULOSKELETAL SYSTEM</b>  |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Bone                           | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>NERVOUS SYSTEM</b>          |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Brain                          | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| <b>RESPIRATORY SYSTEM</b>      |                  |                  |                  |                  |                  |                  |                  |                  |                  |                  |          |
| Larynx                         | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |
| Lung                           | +                | +                | +                | +                | +                | +                | +                | +                | +                | +                | 10       |

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically

Experiment Number: 60311 - 04  
 Test Type: 90-DAY  
 Route: RESPIRATORY EXPOSURE WHOLE BODY  
 Species/Strain: MICE/B6C3F1

P04: NEOPLASMS BY INDIVIDUAL ANIMAL  
 Cobalt  
 CAS Number: 7440-48-4

Date Report Requested: 08/16/2012  
 Time Report Requested: 09:00:49  
 First Dose M/F: 03/07/05 / 03/07/05  
 Lab: BNW

| B6C3F1 MICE FEMALE<br>10 mg/m3 | DAY ON TEST | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |    |
|--------------------------------|-------------|-----------------|---|---|---|---|---|---|---|---|----|
|                                | ANIMAL ID   | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |    |
|                                |             | 9               | 9 | 9 | 9 | 9 | 9 | 9 | 9 | 9 |    |
|                                |             | 6               | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |    |
|                                |             | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |    |
|                                |             | 1               | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |    |
|                                |             | 0               | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |    |
|                                |             | 1               | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0  |
|                                |             | <b>* TOTALS</b> |   |   |   |   |   |   |   |   |    |
| Nose                           |             | +               | + | + | + | + | + | + | + | + | 10 |
| Trachea                        |             | +               | + | I | + | + | + | + | + | + | 9  |
| <b>SPECIAL SENSES SYSTEM</b>   |             |                 |   |   |   |   |   |   |   |   |    |
| Eye                            |             | +               | + | + | + | + | + | + | + | + | 10 |
| Harderian Gland                |             | +               | + | + | + | + | + | + | + | + | 10 |
| <b>URINARY SYSTEM</b>          |             |                 |   |   |   |   |   |   |   |   |    |
| Kidney                         |             | +               | + | + | + | + | + | + | + | + | 10 |
| Urinary Bladder                |             | +               | + | + | + | + | + | + | + | + | 10 |
| <b>SYSTEMIC LESIONS</b>        |             |                 |   |   |   |   |   |   |   |   |    |
| Multiple Organ                 |             | +               | + | + | + | + | + | + | + | + | 10 |

\*\*\* END OF REPORT \*\*\*

\* .. Total animals with tissue examined microscopically; Total animals with tumor  
 + .. Tissue examined microscopically  
 X .. Lesion present  
 I .. Insufficient tissue

M .. Missing tissue  
 A .. Autolysis precludes evaluation  
 BLANK .. Not examined microscopically