F1_Rev.1_HSD

NTP Study Number:	C20403
Lock Date:	04/05/2013
Cage Range:	ALL
Date Range:	ALL
Reasons For Removal:	ALL
Removal Date Range:	ALL
Treatment Groups:	Include ALL
Study Gender:	Both
TDMSE Version:	3.0.2.3_002
PWG Approval Date:	09/08/2015

HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	073 5	070 1	053 8	066 4	073 5	055 3	073 6	073 6	066 4	065 6	065 2	070 1	073 4	073 4	073 7	073 7	069 3	073 4	073 4	073 4	063 6	048 8	055 2	073 3	054 6	
ANIMAL ID	001 01	001 02	001 03	001 04	001 05	001 06	001 07	001 08	001 09	001 10	001 11	001 12	001 13	001 14	001 15	001 16	001 17	001 18	001 19	001 20	001 21	001 22	001 23	001 24	001 25	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Erosion												2														
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer																										
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia																										
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Clear Cell Focus		X			X			X	X				X	X	X	X		X		X			X		
Eosinophilic Focus															X	X										
Fatty Change											1												1			
Hepatocyte, Atrophy																										
Hepatocyte, Necrosis						2											2								2	
Oral Mucosa																										
Ulcer																										
Pancreas	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	073	070	053	066	073	055	073	073	066	065	065	070	073	073	073	073	073	069	073	073	073	063	048	055	073	054	
ANIMAL ID	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	**males (cont...)**
	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		
Mineralization																											
Acinus, Atrophy																2	4										
Acinus, Basophilic Focus							X																				
Acinus, Hyperplasia	3	2		2			3	2		2		2	2			2		2	3		2			2			
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																			4								
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																											
Ulcer										1		2															
Epithelium, Hyperplasia		2						3	1	4	2	2				1											
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																											
Tooth																						+					
Necrosis																						2					
CARDIOVASCULAR SYSTEM																											
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation				1		2		2		2		1					1	1	1	2				1			
Mineralization	2																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy		2	1	1	1	2	1	1		2	1	1		1	1	1	1	2	2	1	2		1	1	2		
Mineralization																											
Atrium, Thrombosis																											

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ANIMAL ID	001 01	001 02	001 03	001 04	001 05	001 06	001 07	001 08	001 09	001 10	001 11	001 12	001 13	001 14	001 15	001 16	001 17	001 18	001 19	001 20	001 21	001 22	001 23	001 24	001 25	**males (cont...)**
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	2			2				2		2			2													
Necrosis																										
Vacuolization Cytoplasmic					1																					
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		1					1		2						1		1	1			1		3	2		
Bilateral, Hyperplasia													1						2							
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Parathyroid Gland	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	
Hyperplasia										1																
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia		1			2	3	3										2		2							
Pars Intermedia, Hyperplasia																			1							
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Thrombosis, Chronic																		4								
C-cell, Hyperplasia	1	1					1	1			2	2	4	2						2						
Follicular Cell, Hyperplasia																	3									

GENERAL BODY SYSTEM

NONE

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DAY ON TEST / ANIMAL ID	0735 0010101	0701 0010102	0538 0010103	0664 0010104	0735 0010105	0553 0010106	0736 0010107	0736 0010108	0664 0010109	0656 0010110	0652 0010111	0701 0010112	0734 0010113	0734 0010114	0737 0010115	0737 0010116	0693 0010117	0734 0010118	0734 0010119	0734 0010120	0636 0010121	0488 0010122	0552 0010123	0733 0010124	0546 0010125
HARLAN SPRAGUE DAWLEY RATS MALE																									
Control (38ppm)																									
GENITAL SYSTEM																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Epithelium, Hyperplasia															1										
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Germinal Epithelium, Atrophy		3											2			1									
Interstitial Cell, Hyperplasia													1												
Seminiferous Tubule, Dilation															1										
HEMATOPOIETIC SYSTEM																									
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy												2													
Hyperplasia		2	3																2						
Lymph Node												+					+								
Deep Cervical, Inflammation																									
Mediastinal, Atrophy												3													
Mediastinal, Hemorrhage																									
Mediastinal, Hemorrhage, Chronic												3													
Mediastinal, Pigmentation, Hemosiderin																									

males (cont...)

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HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

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ANIMAL ID	001 01	001 02	001 03	001 04	001 05	001 06	001 07	001 08	001 09	001 10	001 11	001 12	001 13	001 14	001 15	001 16	001 17	001 18	001 19	001 20	001 21	001 22	001 23	001 24	001 25	
Renal, Hemorrhage																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy										2																
Hyperplasia		2		2					1							3		2		2		2				
Infiltration Cellular, Plasma Cell		2	2										2	2		2		2	3					1		
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Inflammation, Granulomatous								2																		
Inflammation, Chronic Active																										
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation		2	2		1		1				1		1	1	1			1	1	2	3		1		2	
Pigmentation, Hemosiderin	2	1			3	3	3	2	2	1	1	3	2	3	2	2	1	3	3	3		2	2	2		
Lymphoid Follicle, Atrophy						2				2		2													2	
Lymphoid Follicle, Hyperplasia											1										2		1			
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	
Atrophy		3	2	3		4	1		3	4	3	3	2	3	1	3		3	3				3	3	4	

INTEGUMENTARY SYSTEM

Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion													X													
Fibrosis																										
Inflammation														4					4							
Ulcer																										

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DAY ON TEST / ANIMAL ID	073501	070102	053803	066404	073505	055306	073607	073608	066409	065610	065211	070112	073413	073414	073714	073715	073716	069317	073418	073419	073420	063621	048822	055223	073324	054625
HARLAN SPRAGUE DAWLEY RATS MALE																										
Control (38ppm)	001001	001002	001003	001004	001005	001006	001007	001008	001009	001010	001011	001012	001013	001014	001015	001016	001017	001018	001019	001020	001021	001022	001023	001024	001025	**males (cont...)**
Epidermis, Hyperplasia																										
Hair Follicle, Cyst														4												
Hair Follicle, Cyst, Multiple																										
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibrous Osteodystrophy																										
Inflammation																			4							
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	A	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ventricle, Developmental Malformation																				3						
Peripheral Nerve																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema						2																				
Infiltration Cellular, Histiocyte	3		2				1			2			3	3	2	2									2	3
Inflammation																										
Necrosis																										
Interstitium, Thrombosis																										3
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation	1			1		3													1							
Respiratory Epithelium, Metaplasia, Squamous				1																						

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / Control (38ppm) ANIMAL ID	0735 0001	0701 0002	0538 0003	0664 0004	0735 0005	0553 0006	0736 0007	0736 0008	0664 0009	0656 0010	0652 0011	0701 0012	0734 0013	0734 0014	0737 0015	0737 0016	0693 0017	0734 0018	0734 0019	0734 0020	0636 0021	0488 0022	0552 0023	0733 0024	0546 0025	males (cont...)
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Anterior Chamber, Inflammation, Acute																										
Anterior Chamber, Bilateral, Inflammation, Acute																										
Bilateral, Cornea, Inflammation, Acute																										
Bilateral, Cornea, Inflammation, Chronic Active																				2						
Bilateral, Cornea, Necrosis																										
Lens, Cataract																										
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Zymbal's Gland																							+			
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy	1	2	1	2	2	4	3	1	1	4	2	4	1	3	1	2	4	2	2	3	1		2	4	4	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																			2							

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HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	073 4	069 1	061 1	073 4	073 4	072 9	064 2	073 4	068 3	070 1	073 5	063 8	073 5	018 6	058 6	061 5	051 4	067 3	067 8	069 1	060 9	049 6	053 7	068 4	073 4	
ANIMAL ID	001 26	001 27	001 28	001 29	001 30	001 31	001 32	001 33	001 34	001 35	001 36	001 37	001 38	001 39	001 40	001 41	001 42	001 43	001 44	001 45	001 46	001 47	001 48	001 49	001 50	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Erosion																										
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	
Ulcer			4																							
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia									2																	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Clear Cell Focus	X			X	X		X	X					X												X	
Eosinophilic Focus										X						X										
Fatty Change									1	1								1								
Hepatocyte, Atrophy			2																							
Hepatocyte, Necrosis			1																							
Oral Mucosa			+																							
Ulcer			2																							
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	073 4	069 1	061 1	073 4	073 4	072 9	064 2	073 4	068 3	070 1	073 5	063 8	073 5	018 6	058 6	061 5	051 4	067 3	067 8	069 1	060 9	049 6	053 7	068 4	073 4	
HARLAN SPRAGUE DAWLEY RATS MALE																										
Control (38ppm) ANIMAL ID	001 26	001 27	001 28	001 29	001 30	001 31	001 32	001 33	001 34	001 35	001 36	001 37	001 38	001 39	001 40	001 41	001 42	001 43	001 44	001 45	001 46	001 47	001 48	001 49	001 50	**males (cont...)**
Mineralization																						1				
Acinus, Atrophy				1																						
Acinus, Basophilic Focus																										
Acinus, Hyperplasia			1		1		1				2		1		2			2	4				2	1		
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	
Cyst																										
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																	2					2				
Ulcer											2															
Epithelium, Hyperplasia		2				2														2				1		
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																	2					2				
Tooth					+																	+				
Necrosis					2																	2				
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation		2	2		1			1	1		2		1			2	3			2	1	1	1		3	
Mineralization																	2					2				
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy		2	1	1	2	1	1	2	2	1	1	1	2		1		3	2	2	2		1	2	1	2	
Mineralization																	2					2				
Atrium, Thrombosis		2	4																	4						

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HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	073 4	069 1	061 1	073 4	073 4	072 9	064 2	073 4	068 3	070 1	073 5	063 8	073 5	018 6	058 6	061 5	051 4	067 3	067 8	069 1	060 9	049 6	053 7	068 4	073 4	
ANIMAL ID	001 26	001 27	001 28	001 29	001 30	001 31	001 32	001 33	001 34	001 35	001 36	001 37	001 38	001 39	001 40	001 41	001 42	001 43	001 44	001 45	001 46	001 47	001 48	001 49	001 50	**males (cont...)**
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia															2						2					
Necrosis																						1				
Vacuolization Cytoplasmic																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	1			3							1					2		1		4		3		2		
Bilateral, Hyperplasia			1		3																		2			
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia							1																			
Parathyroid Gland	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		2							2							1	2				2					
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia	2	1		2		1															2				2	
Pars Intermedia, Hyperplasia																										
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Thrombosis, Chronic																										
C-cell, Hyperplasia	3			4									1		2			1		1					1	
Follicular Cell, Hyperplasia																										
GENERAL BODY SYSTEM																										
NONE																										

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	073 4	069 1	061 1	073 4	073 4	072 9	064 2	073 4	068 3	070 1	073 5	063 8	073 5	018 6	058 6	061 5	051 4	067 3	067 8	069 1	060 9	049 6	053 7	068 4	073 4	
HARLAN SPRAGUE DAWLEY RATS MALE																										
Control (38ppm) ANIMAL ID	001 26	001 27	001 28	001 29	001 30	001 31	001 32	001 33	001 34	001 35	001 36	001 37	001 38	001 39	001 40	001 41	001 42	001 43	001 44	001 45	001 46	001 47	001 48	001 49	001 50	**males (cont...)**
GENITAL SYSTEM																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				4						
Epithelium, Hyperplasia															1											
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				4						
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Germinal Epithelium, Atrophy							3					1														
Interstitial Cell, Hyperplasia																										
Seminiferous Tubule, Dilation																										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia	1																									
Lymph Node		+				+														+		+				
Deep Cervical, Inflammation						4																				
Mediastinal, Atrophy																										
Mediastinal, Hemorrhage																				2		3				
Mediastinal, Hemorrhage, Chronic																										
Mediastinal, Pigmentation, Hemosiderin		3																								

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / Control (38ppm) ANIMAL ID	073401261	069101271	061101281	073401291	073401300	072901311	064201321	073401331	068301341	070101351	073501361	063801371	073501381	018601391	058601400	061501411	051401422	067301431	067801441	069101451	060901461	049601471	053701481	068401491	073401501
Renal, Hemorrhage																						4			
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+
Atrophy			2																						
Hyperplasia		1			3		2	2	2		4				2				2						
Infiltration Cellular, Plasma Cell	2			2															2						3
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy			2															3							
Inflammation, Granulomatous																									
Inflammation, Chronic Active															4										
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hematopoietic Cell Proliferation	1	2	2				1	1	1		1		1		2					2	2		1		2
Pigmentation, Hemosiderin	1	2	3	2	2	2	1	3	2	1	3			1	1	2	3	3	3	2	2	2	3	2	3
Lymphoid Follicle, Atrophy						2											2								
Lymphoid Follicle, Hyperplasia		3					1		2										1						
Thymus	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+
Atrophy			4		2	3	4	1	2	4	3	4	4		3	3	4	3	3	4	2		3		4
INTEGUMENTARY SYSTEM																									
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyst Epithelial Inclusion																									
Fibrosis																					2				
Inflammation													4												4
Ulcer						4		2							4										

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2) Mild 4) Marked

DAY ON TEST / ANIMAL ID	0734 0126	0691 0127	0611 0128	0734 0129	0734 0130	0729 0131	0642 0132	0734 0133	0683 0134	0701 0135	0735 0136	0638 0137	0735 0138	0186 0139	0586 0140	0615 0141	0514 0142	0673 0143	0678 0144	0691 0145	0609 0146	0496 0147	0537 0148	0684 0149	0734 0150	males (cont...)
Epidermis, Hyperplasia		4									4															
Hair Follicle, Cyst																								X		
Hair Follicle, Cyst, Multiple					X																					
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibrous Osteodystrophy		2	1														1									
Inflammation																										
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ventricle, Developmental Malformation																										
Peripheral Nerve										+																
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema																										
Infiltration Cellular, Histiocyte	1		2	2		2			2		2		1									2				
Inflammation		3																		3		2				
Necrosis			2																							
Interstitium, Thrombosis																										
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation						4															1	2			1	
Respiratory Epithelium, Metaplasia, Squamous																										

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / Control (38ppm) ANIMAL ID	0734 0126	0691 0127	0611 0128	0734 0129	0734 0130	0729 0131	0642 0132	0734 0133	0683 0134	0701 0135	0735 0136	0638 0137	0735 0138	0186 0139	0586 0140	0615 0141	0514 0142	0673 0143	0678 0144	0691 0145	0609 0146	0496 0147	0537 0148	0684 0149	0734 0150	males (cont...)
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Anterior Chamber, Inflammation, Acute						2																				
Anterior Chamber, Bilateral, Inflammation, Acute																1										
Bilateral, Cornea, Inflammation, Acute						3										2										
Bilateral, Cornea, Inflammation, Chronic Active																										
Bilateral, Cornea, Necrosis						3																				
Lens, Cataract						1																				
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Zymbal's Gland																										
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy	2	4	4	1	4	1	1	3	3	1	4	3	2	1	2	4	4	2	3	4	3	4	3	3	4	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				2						

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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
Control (38ppm) ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Erosion											**1 2.0**
Intestine Large, Colon											**49**
Ulcer											**1 4.0**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**50**
Epithelium, Hyperplasia											**1 2.0**
Intestine Small, Ileum											**50**
Intestine Small, Jejunum											**50**
Liver											**50**
Clear Cell Focus											**18**
Eosinophilic Focus											**4**
Fatty Change											**5 1.0**
Hepatocyte, Atrophy											**1 2.0**
Hepatocyte, Necrosis											**4 1.8**
Oral Mucosa											**1**
Ulcer											**1 2.0**
Pancreas											**49**

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HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
Mineralization											**1 1.0**
Acinus, Atrophy											**3 2.3**
Acinus, Basophilic Focus											**1**
Acinus, Hyperplasia											**23 2.0**
Salivary Glands											**49**
Cyst											**1 4.0**
Stomach, Forestomach											**50**
Mineralization											**2 2.0**
Ulcer											**3 1.7**
Epithelium, Hyperplasia											**11 2.0**
Stomach, Glandular											**50**
Mineralization											**2 2.0**
Tooth											**3**
Necrosis											**3 2.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**24 1.5**
Mineralization											**3 2.0**
Heart											**50**
Cardiomyopathy											**42 1.5**
Mineralization											**2 2.0**
Atrium, Thrombosis											**3 3.3**

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1-4 .. Lesion qualified as:
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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
Control (38ppm) ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Hyperplasia											**7 2.0**
Necrosis											**1 1.0**
Vacuolization Cytoplasmic											**1 1.0**
Adrenal Medulla											**50**
Hyperplasia											**16 1.8**
Bilateral, Hyperplasia											**6 1.8**
Islets, Pancreatic											**50**
Hyperplasia											**1 1.0**
Parathyroid Gland											**47**
Hyperplasia											**6 1.7**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**12 1.9**
Pars Intermedia, Hyperplasia											**1 1.0**
Thyroid Gland											**50**
Thrombosis, Chronic											**1 4.0**
C-cell, Hyperplasia											**16 1.8**
Follicular Cell, Hyperplasia											**1 3.0**
GENERAL BODY SYSTEM											
NONE											

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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
Control (38ppm) ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
GENITAL SYSTEM											
Epididymis											**50**
Preputial Gland											**50**
Prostate											**50**
Inflammation											**1 4.0**
Epithelium, Hyperplasia											**2 1.0**
Seminal Vesicle											**50**
Inflammation											**1 4.0**
Testes											**50**
Germinal Epithelium, Atrophy											**5 2.0**
Interstitial Cell, Hyperplasia											**1 1.0**
Seminiferous Tubule, Dilation											**1 1.0**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 2.0**
Hyperplasia											**4 2.0**
Lymph Node											**6**
Deep Cervical, Inflammation											**1 4.0**
Mediastinal, Atrophy											**1 3.0**
Mediastinal, Hemorrhage											**2 2.5**
Mediastinal, Hemorrhage, Chronic											**1 3.0**
Mediastinal, Pigmentation, Hemosiderin											**1 3.0**

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HARLAN SPRAGUE DAWLEY RATS MALE

Control (38ppm)

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
Renal, Hemorrhage											**1 4.0**
Lymph Node, Mandibular											**49**
Atrophy											**2 2.0**
Hyperplasia											**15 2.1**
Infiltration Cellular, Plasma Cell											**12 2.1**
Lymph Node, Mesenteric											**50**
Atrophy											**2 2.5**
Inflammation, Granulomatous											**1 2.0**
Inflammation, Chronic Active											**1 4.0**
Spleen											**50**
Hematopoietic Cell Proliferation											**27 1.4**
Pigmentation, Hemosiderin											**44 2.2**
Lymphoid Follicle, Atrophy											**6 2.0**
Lymphoid Follicle, Hyperplasia											**7 1.6**
Thymus											**47**
Atrophy											**37 3.0**
INTEGUMENTARY SYSTEM											
Mammary Gland											**50**
Skin											**50**
Cyst Epithelial Inclusion											**1**
Fibrosis											**1 2.0**
Inflammation											**4 4.0**
Ulcer											**3 3.3**

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1-4 .. Lesion qualified as:
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HARLAN SPRAGUE DAWLEY RATS MALE Control (38ppm)	DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	* TOTALS	
	ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530		
Epidermis, Hyperplasia												**2**	**4.0**
Hair Follicle, Cyst												**2**	**4.0**
Hair Follicle, Cyst, Multiple												**1**	
MUSCULOSKELETAL SYSTEM													
Bone												**50**	
Fibrous Osteodystrophy												**3**	**1.3**
Inflammation												**1**	**4.0**
NERVOUS SYSTEM													
Brain												**48**	
Ventricle, Developmental Malformation												**1**	**3.0**
Peripheral Nerve												**1**	
RESPIRATORY SYSTEM													
Lung												**50**	
Edema												**1**	**2.0**
Infiltration Cellular, Histiocyte												**18**	**2.1**
Inflammation												**3**	**2.7**
Necrosis												**1**	**2.0**
Interstitium, Thrombosis												**1**	**3.0**
Nose												**50**	
Inflammation												**8**	**1.8**
Respiratory Epithelium, Metaplasia, Squamous												**1**	**1.0**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
Control (38ppm) ANIMAL ID	00521	00522	00523	00524	00525	00526	00527	00528	00529	00530	*** TOTALS**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**50**
Anterior Chamber, Inflammation, Acute											**1 2.0**
Anterior Chamber, Bilateral, Inflammation, Acute											**1 1.0**
Bilateral, Cornea, Inflammation, Acute											**2 2.5**
Bilateral, Cornea, Inflammation, Chronic Active											**1 2.0**
Bilateral, Cornea, Necrosis											**1 3.0**
Lens, Cataract											**1 1.0**
Harderian Gland											**50**
Zymbal's Gland											**1**
URINARY SYSTEM											
Kidney											**50**
Nephropathy											**49 2.6**
Urinary Bladder											**50**
Inflammation											**2 2.0**

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2) Mild 4) Marked

DAY ON TEST	073	069	073	073	073	046	073	073	071	073	064	070	073	073	073	073	073	073	050	073	070	050	073	073	073	
HARLAN SPRAGUE DAWLEY RATS MALE	4	8	7	7	4	7	4	4	5	7	9	8	5	5	5	5	7	7	5	5	8	4	7	7	4	
3.5ppm SevZnDef ANIMAL ID	00001	00002	00003	00004	00005	00006	00007	00008	00009	00010	00011	00012	00013	00014	00015	00016	00017	00018	00019	00020	00021	00022	00023	00024	00025	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus									X																	
Clear Cell Focus	X		X	X			X	X		X			X	X	X	X	X	X		X				X	X	
Fatty Change																										
Hepatodiaphragmatic Nodule																										
Mesentery										+																
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy																										
Acinus, Hyperplasia	3		1	2	2		1					3	3		2	2	2	2		2			3	2	3	
Duct, Hyperplasia, Cystic																							2			
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / ANIMAL ID	0734 0001	0698 0002	0737 0003	0737 0004	0734 0005	0467 0006	0734 0007	0734 0008	0715 0009	0737 0010	0649 0011	0708 0012	0735 0013	0735 0014	0735 0015	0735 0016	0737 0017	0737 0018	0505 0019	0735 0020	0708 0021	0504 0022	0737 0023	0737 0024	0734 0025	**males (cont...)**
HARLAN SPRAGUE DAWLEY RATS MALE																										
3.5ppm SevZnDef																										
Cyst																										
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia	1		1	1	1			2									1		1	1				1		
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation	2	2		1	2		1	2	1	2		2		1	2	1	1			1	1		1		1	
Aorta, Mineralization		2																								
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy	1	2		1	1	1		2	2	2		2		2	1				1		2	1	1	1	1	
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic												2														
Hyperplasia																										
Hypertrophy			2																							
Vacuolization Cytoplasmic							1																			
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	1	2			2	1				1						3	2		1		1		2		1	
Bilateral, Hyperplasia			2									2														
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy											3															

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HARLAN SPRAGUE DAWLEY RATS MALE
3.5ppm SevZnDef

DAY ON TEST	0734	0698	0737	0737	0734	0467	0734	0734	0715	0737	0649	0708	0735	0735	0735	0735	0737	0737	0505	0735	0708	0504	0737	0737	0734	**males (cont...)**
ANIMAL ID	00001	00002	00003	00004	00005	00006	00007	00008	00009	00010	00011	00012	00013	00014	00015	00016	00017	00018	00019	00020	00021	00022	00023	00024	00025	
Parathyroid Gland	M	+	+	+	M	+	+	+	+	+	+	M	+	+	M	M	+	+	+	+	+	+	+	+	M	
Hyperplasia									2									2								
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia			2				1		4	3		1				2	2		1					1	1	
Pars Intermedia, Hyperplasia																					3					
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia			4						2								2	2		1		4	2			

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema																				4						
Mineralization																			1							
Bilateral, Germ Cell, Degeneration																										
Bilateral, Germinal Epithelium, Atrophy						2							4						1			3				
Germinal Epithelium, Atrophy			4																					1		

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 3.5ppm SevZnDef / ANIMAL ID	073401	069802	073703	073704	073405	046706	073407	073408	071509	073710	064911	070812	073513	073514	073515	073516	073717	073718	050519	073520	070821	050422	073723	073724	073425	males (cont...)
Seminiferous Tubule, Dilation							3																			
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		3																								
Hyperplasia									2													1				
Lymph Node												+														
Mediastinal, Hemorrhage												3														
Pancreatic, Hemorrhage												2														
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		2																								
Ectasia	2																									
Hyperplasia				2							2		2	2			2		2							
Infiltration Cellular, Plasma Cell	2								2							2										
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Infiltration Cellular, Plasma Cell																										
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation				2	1	1	2	2	2	2	2	2	2	1	2	2	2		1			2	1	2	1	
Pigmentation, Hemosiderin	2	3	3	1	2	2	2	2	1	2		2	2	2	2	2	2	2	2	2	3	1	1	2	1	
Lymphoid Follicle, Atrophy		3																								
Lymphoid Follicle, Hyperplasia	2				2				1							2					2	2				
Thymus	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	4	4	4	3	2	3	2		2	1		3		2	2	2	2		3	2	2	4	1	4	1	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 3.5ppm SevZnDef / ANIMAL ID	0734 0001	0698 0002	0737 0003	0737 0004	0734 0005	0467 0006	0734 0007	0734 0008	0715 0009	0737 0010	0649 0011	0708 0012	0735 0013	0735 0014	0735 0015	0735 0016	0737 0017	0737 0018	0505 0019	0735 0020	0708 0021	0504 0022	0737 0023	0737 0024	0734 0025	males (cont...)
Hyperplasia																		2								
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion																	X									
Epidermis, Hyperplasia																				4						
Hair Follicle, Cyst																										
Hair Follicle, Hyperplasia												4														
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cerebrum, Gliosis									2																	
Peripheral Nerve																			+							
Spinal Cord																			+							
Axon, Degeneration																			2							
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	2	4			2		3		1	2							1	2			1			2	2	

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DAY ON TEST	0734	0698	0737	0737	0734	0467	0734	0734	0715	0737	0649	0708	0735	0735	0735	0735	0737	0737	0505	0735	0708	0504	0737	0737	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
3.5ppm SevZnDef																										
ANIMAL ID	00001	00002	00003	00004	00005	00006	00007	00008	00009	00010	00011	00012	00013	00014	00015	00016	00017	00018	00019	00020	00021	00022	00023	00024	00025	**males (cont...)**
Inflammation		2										3														
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Accumulation, Hyaline Droplet			1																							
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																						4				
Cataract																						3				
Bilateral, Cornea, Inflammation, Acute		2																								
Bilateral, Cornea, Inflammation, Chronic Active										1																
Cornea, Inflammation, Acute																					2					
Cornea, Ulcer		2																								
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																										
Infarct, Chronic																				2						
Nephropathy	2	4	1	3	2	3	2	2	3	3	2	4	1	1	2	3	2	2	1	2	3	1	3	1	2	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0734	0663	0734	0737	0737	0737	0538	0734	0285	0734	0734	0686	0649	0704	0705	0737	0737	0701	0687	0675	0734	0734	0551	0734	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
3.5ppm SevZnDef																										
ANIMAL ID	00026	00027	00028	00029	00030	00031	00032	00033	00034	00035	00036	00037	00038	00039	00040	00041	00042	00043	00044	00045	00046	00047	00048	00049	00050	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus																										
Clear Cell Focus			X	X		X	X	X			X		X			X		X			X		X			
Fatty Change																1	1						1	1		
Hepatodiaphragmatic Nodule										X																
Mesentery																										
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy											2								1					1		
Acinus, Hyperplasia	2	2	3	3	3			1		3	2		2		2	2	4				3	3	1	3	2	
Duct, Hyperplasia, Cystic																										
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 3.5ppm SevZnDef / ANIMAL ID	0734 0026	0663 0027	0734 0028	0737 0029	0737 0030	0737 0031	0538 0032	0734 0033	0285 0034	0734 0035	0734 0036	0686 0037	0649 0038	0704 0039	0705 0040	0737 0041	0737 0042	0701 0043	0687 0044	0675 0045	0734 0046	0734 0047	0551 0048	0734 0049	0734 0050	**males (cont...)**
Cyst																		4								
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epithelium, Hyperplasia			3				1			1		3					1		2			1				
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation	1			1		1		2		1				1	1				1	2	1	3		1		
Aorta, Mineralization																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiomyopathy	2	1	2		1	1		2		2		2	1	1	2	1	1	1	1	1	2	2	1	1	2	
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Degeneration, Cystic																										
Hyperplasia															2									2	2	
Hypertrophy																										
Vacuolization Cytoplasmic																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia			2	2									1	3	1		3	2				1	1	2		
Bilateral, Hyperplasia								2																		
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy																										

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DAY ON TEST	0734	0663	0734	0737	0737	0737	0538	0734	0285	0734	0734	0686	0649	0704	0705	0737	0737	0701	0687	0675	0734	0734	0551	0734	0734
HARLAN SPRAGUE DAWLEY RATS MALE																									
3.5ppm SevZnDef																									
ANIMAL ID	00026	00027	00028	00029	00030	00031	00032	00033	00034	00035	00036	00037	00038	00039	00040	00041	00042	00043	00044	00045	00046	00047	00048	00049	00050
males (cont...)																									
Parathyroid Gland	+	+	+	+	+	+	M	M	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia																									
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars Distalis, Hyperplasia						2		2				4	2	1		2	4								
Pars Intermedia, Hyperplasia																									
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, Hyperplasia				2		4		1		1	2		2				1		1		2				
GENERAL BODY SYSTEM																									
NONE																									
GENITAL SYSTEM																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Edema													4												
Mineralization																									
Bilateral, Germ Cell, Degeneration									2																
Bilateral, Germinal Epithelium, Atrophy		2											3										2		
Germinal Epithelium, Atrophy																									2

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DAY ON TEST	073	066	073	073	073	073	053	073	028	073	073	068	064	070	070	073	073	070	068	067	073	073	055	073	073
HARLAN SPRAGUE DAWLEY RATS MALE	4	3	4	7	7	7	8	4	5	4	4	6	9	4	5	7	7	1	7	5	4	4	1	4	4
3.5ppm SevZnDef ANIMAL ID	00026	00027	00028	00029	00030	00031	00032	00033	00034	00035	00036	00037	00038	00039	00040	00041	00042	00043	00044	00045	00046	00047	00048	00049	00050	**males (cont...)**
Seminiferous Tubule, Dilation																										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia									3									3								
Lymph Node																										
Mediastinal, Hemorrhage																										
Pancreatic, Hemorrhage																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Ectasia																										
Hyperplasia								2		2			2		2						2	2	2		2	
Infiltration Cellular, Plasma Cell			2			2									2		2		2			2				
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia								2				2														
Infiltration Cellular, Plasma Cell																			2							
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	1		1	1			2	2	2	1		1	1		2	1	1	3			1	1	1	2	1	
Pigmentation, Hemosiderin	1		3		2	2	2	2	1		2	2	1		2	1	1		3	3	2	1	3	2		
Lymphoid Follicle, Atrophy																										
Lymphoid Follicle, Hyperplasia							2	1																		
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2		3	3	3		2	2	3	3	2	3		4	2	4	3	2	4	4		3			2	

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / ANIMAL ID	0734 0026	0663 0027	0734 0028	0737 0029	0737 0030	0737 0031	0538 0032	0734 0033	0285 0034	0734 0035	0734 0036	0686 0037	0649 0038	0704 0039	0705 0040	0737 0041	0737 0042	0701 0043	0687 0044	0675 0045	0734 0046	0734 0047	0551 0048	0734 0049	0734 0050	**males (cont...)**
Hyperplasia																										
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion																										
Epidermis, Hyperplasia				4																						
Hair Follicle, Cyst																	X									
Hair Follicle, Hyperplasia																										
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cerebrum, Gliosis																										
Peripheral Nerve																										
Spinal Cord																										
Axon, Degeneration																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte			1		2						2		2				2	2	1		2	2			1	

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 3.5ppm SevZnDef / ANIMAL ID	0734	0663	0734	0737	0737	0737	0538	0734	0285	0734	0734	0686	0649	0704	0705	0737	0737	0701	0687	0675	0734	0734	0551	0734	0734	males (cont...)
	00026	00027	00028	00029	00030	00031	00032	00033	00034	00035	00036	00037	00038	00039	00040	00041	00042	00043	00044	00045	00046	00047	00048	00049	00050	
Inflammation												4		3												
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Accumulation, Hyaline Droplet																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Cataract																										
Bilateral, Cornea, Inflammation, Acute																										
Bilateral, Cornea, Inflammation, Chronic Active																										
Cornea, Inflammation, Acute																										
Cornea, Ulcer																										
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst				3																						
Infarct, Chronic			2													1										
Nephropathy	3	1	2	3	1	2	1	3	2	2	1	2	1	3	4	1	2	1	2	3	3	3	2	3	1	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	370	370	370	370	370	370	370	370	370	370	
HARLAN SPRAGUE DAWLEY RATS MALE											
3.5ppm SevZnDef											
ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Intestine Large, Colon											**50**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**49**
Intestine Small, Ileum											**49**
Intestine Small, Jejunum											**49**
Liver											**50**
Basophilic Focus											**1**
Clear Cell Focus											**26**
Fatty Change											**4 1.0**
Hepatodiaphragmatic Nodule											**1**
Mesentery											**1**
Pancreas											**50**
Acinus, Atrophy											**3 1.3**
Acinus, Hyperplasia											**32 2.3**
Duct, Hyperplasia, Cystic											**1 2.0**
Salivary Glands											**50**

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
3.5ppm SevZnDef											
ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**
Cyst											**1 4.0**
Stomach, Forestomach											**50**
Epithelium, Hyperplasia											**16 1.4**
Stomach, Glandular											**50**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**29 1.4**
Aorta, Mineralization											**1 2.0**
Heart											**50**
Cardiomyopathy											**38 1.4**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**1 2.0**
Hyperplasia											**3 2.0**
Hypertrophy											**1 2.0**
Vacuolization Cytoplasmic											**1 1.0**
Adrenal Medulla											**50**
Hyperplasia											**21 1.7**
Bilateral, Hyperplasia											**3 2.0**
Islets, Pancreatic											**50**
Atrophy											**1 3.0**

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
3.5ppm SevZnDef											
ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**
Parathyroid Gland											**41**
Hyperplasia											**2 2.0**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**17 2.1**
Pars Intermedia, Hyperplasia											**1 3.0**
Thyroid Gland											**50**
C-cell, Hyperplasia											**16 2.1**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Epididymis											**50**
Preputial Gland											**50**
Prostate											**50**
Seminal Vesicle											**50**
Testes											**50**
Edema											**2 4.0**
Mineralization											**1 1.0**
Bilateral, Germ Cell, Degeneration											**1 2.0**
Bilateral, Germinal Epithelium, Atrophy											**7 2.4**
Germinal Epithelium, Atrophy											**3 2.3**

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+ .. Tissue examined microscopically
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
3.5ppm SevZnDef											
ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**
Seminiferous Tubule, Dilation											**1 3.0**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 3.0**
Hyperplasia											**4 2.3**
Lymph Node											**1**
Mediastinal, Hemorrhage											**1 3.0**
Pancreatic, Hemorrhage											**1 2.0**
Lymph Node, Mandibular											**50**
Atrophy											**1 2.0**
Ectasia											**1 2.0**
Hyperplasia											**14 2.0**
Infiltration Cellular, Plasma Cell											**9 2.0**
Lymph Node, Mesenteric											**50**
Hyperplasia											**2 2.0**
Infiltration Cellular, Plasma Cell											**1 2.0**
Spleen											**50**
Hematopoietic Cell Proliferation											**37 1.5**
Pigmentation, Hemosiderin											**43 1.9**
Lymphoid Follicle, Atrophy											**1 3.0**
Lymphoid Follicle, Hyperplasia											**8 1.8**
Thymus											**49**
Atrophy											**40 2.7**

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M .. Missing tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	037	037	037	037	037		
HARLAN SPRAGUE DAWLEY RATS MALE												
3.5ppm SevZnDef ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**	
Hyperplasia											**1**	**2.0**
INTEGUMENTARY SYSTEM												
Mammary Gland											**49**	
Skin											**50**	
Cyst Epithelial Inclusion											**1**	
Epidermis, Hyperplasia											**2**	**4.0**
Hair Follicle, Cyst											**1**	
Hair Follicle, Hyperplasia											**1**	**4.0**
MUSCULOSKELETAL SYSTEM												
Bone											**50**	
NERVOUS SYSTEM												
Brain											**50**	
Cerebrum, Gliosis											**1**	**2.0**
Peripheral Nerve											**1**	
Spinal Cord											**1**	
Axon, Degeneration											**1**	**2.0**
RESPIRATORY SYSTEM												
Lung											**50**	
Infiltration Cellular, Histiocyte											**21**	**1.9**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
3.5ppm SevZnDef											
ANIMAL ID	00501	00502	00503	00504	00505	00506	00507	00508	00509	00510	*** TOTALS**
Inflammation											**4 3.0**
Nose											**50**
Accumulation, Hyaline Droplet											**1 1.0**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**49**
Atrophy											**1 4.0**
Cataract											**1 3.0**
Bilateral, Cornea, Inflammation, Acute											**1 2.0**
Bilateral, Cornea, Inflammation, Chronic Active											**1 1.0**
Cornea, Inflammation, Acute											**1 2.0**
Cornea, Ulcer											**1 2.0**
Harderian Gland											**49**
URINARY SYSTEM											
Kidney											**50**
Cyst											**1 3.0**
Infarct, Chronic											**3 1.7**
Nephropathy											**50 2.1**
Urinary Bladder											**50**

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HARLAN SPRAGUE DAWLEY RATS MALE

7ppm ZnDef

DAY ON TEST	0736	0736	0734	0734	0659	0734	0734	0734	0701	0505	0737	0737	0734	0734	0734	0707	0670	0737	0735	0687	0734	0734	0734	0734	0627	
ANIMAL ID	00051	00052	00053	00054	00055	00056	00057	00058	00059	00060	00061	00062	00063	00064	00065	00066	00067	00068	00069	00070	00071	00072	00073	00074	00075	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Clear Cell Focus	X	X		X		X	X	X			X	X	X	X	X			X			X	X		X		
Eosinophilic Focus											X															
Fatty Change							1			1										1						
Mixed Cell Focus												X														
Hepatocyte, Necrosis																3			1							
Serosa, Inflammation, Acute																										
Oral Mucosa																										
Hyperplasia																										
Inflammation																										
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy	1								2			1									1					

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 7ppm ZnDef / ANIMAL ID	0736 00051	0736 00052	0734 00053	0734 00054	0659 00055	0734 00056	0734 00057	0734 00058	0701 00059	0505 00060	0737 00061	0737 00062	0734 00063	0734 00064	0734 00065	0707 00066	0670 00067	0737 00068	0735 00069	0687 00070	0734 00071	0734 00072	0734 00073	0734 00074	0627 00075	males (cont...)
Acinus, Basophilic Focus				X																					
Acinus, Hyperplasia		1		2			2	2			4	4	2					1	2	2	3	2	3	2	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ulcer																									
Epithelium, Hyperplasia		3					1		4	2									2						
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Metaplasia, Squamous														1											
Mineralization																									
Tooth																	+								
Malformation																	1								
CARDIOVASCULAR SYSTEM																									
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation	1		2	2	3	1			2		1			1		1			1		2		2	1	2
Necrosis																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiomyopathy	2	2	1	1	2	2	2	2	2		2	2	1	1	2	2	2	1	2	1	2	2	1	1	2
Atrium, Thrombosis																4			4				4		
Valve, Inflammation																									
ENDOCRINE SYSTEM																									
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia							2		2		2		2						2					1	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 7ppm ZnDef / ANIMAL ID	0736 00051	0736 00052	0734 00053	0734 00054	0659 00055	0734 00056	0734 00057	0734 00058	0701 00059	0505 00060	0737 00061	0737 00062	0734 00063	0734 00064	0734 00065	0707 00066	0670 00067	0737 00068	0735 00069	0687 00070	0734 00071	0734 00072	0734 00073	0734 00074	0627 00075	**males (cont...)**
Necrosis																									
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia				1	4	1	1		1										2			1		2	
Bilateral, Hyperplasia								1			1			1							3				1
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia															1									1	
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia																									
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars Distalis, Hyperplasia	2		2	2										2			1	1		2					
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, Hyperplasia		4			3	3					4		4				1			2		2	2		
GENERAL BODY SYSTEM																									
NONE																									
GENITAL SYSTEM																									
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Penis																									
Developmental Malformation																									
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 7ppm ZnDef / ANIMAL ID	07360 00051	07360 00052	07340 00053	07340 00054	06590 00055	07340 00056	07340 00057	07340 00058	07010 00059	05050 00060	07370 00061	07370 00062	07340 00063	07340 00064	07340 00065	07070 00066	06700 00067	07370 00068	07350 00069	06870 00070	07340 00071	07340 00072	07340 00073	07340 00074	06270 00075	males (cont...)
Inflammation												4								4						
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia																										
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germinal Epithelium, Atrophy																				3						
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Lymph Node					+				+							+							+			
Mediastinal, Atrophy									3							3										
Mediastinal, Hemorrhage					3				3							3							3			
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																			2							
Ectasia									4																	
Hyperplasia	2				3			3			3	3	2					2		2	3					
Infiltration Cellular, Plasma Cell	2		2								2			2	2			2				2			2	
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation, Granulomatous		2																								
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS MALE
7ppm ZnDef

DAY ON TEST	073 6	073 6	073 4	073 4	065 9	073 4	073 4	073 4	070 1	050 5	073 7	073 7	073 4	073 4	073 4	070 7	067 0	073 7	073 5	068 7	073 4	073 4	073 4	073 4	062 7	
ANIMAL ID	00051	00052	00053	00054	00055	00056	00057	00058	00059	00060	00061	00062	00063	00064	00065	00066	00067	00068	00069	00070	00071	00072	00073	00074	00075	**males (cont...)**
Hematopoietic Cell Proliferation		1	1		1		1				2	1	2		1					2	1	2	1			
Pigmentation, Hemosiderin	3	1	2	1	2	2	1	2	1	4	1	3	2	2	2	1	2	2	1	2	1	1	2	3	2	
Lymphoid Follicle, Atrophy																3										
Lymphoid Follicle, Hyperplasia	2	2	1				1	1	2	1		2						2			1					
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		3	3	3	4	2	2	2		2	2	2	3	2		4	2	3	4		3	2			2	
Hyperplasia																				4						
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion																										
Inflammation																										
Epidermis, Hyperplasia													4													
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibrous Osteodystrophy																										
Skeletal Muscle																						+				
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										

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DAY ON TEST	07 36	07 36	07 34	07 34	06 59	07 34	07 34	07 34	07 01	05 05	07 37	07 37	07 34	07 34	07 34	07 07	06 70	07 37	07 35	06 87	07 34	07 34	07 34	07 34	06 27	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef																										
ANIMAL ID	00051	00052	00053	00054	00055	00056	00057	00058	00059	00060	00061	00062	00063	00064	00065	00066	00067	00068	00069	00070	00071	00072	00073	00074	00075	**males (cont...)**
Peripheral Nerve										+																
Spinal Cord										+																
Axon, Degeneration										2																
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte							3	1	1		2	1	2	1	2					2		2		3		
Inflammation					4					1									3				3			
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				1						
Olfactory Epithelium, Atrophy																										
Respiratory Epithelium, Hyperplasia																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Anterior Chamber, Inflammation, Acute																										
Bilateral, Cornea, Inflammation, Acute																										
Bilateral, Cornea, Inflammation, Chronic Active									2										3							
Bilateral, Cornea, Necrosis																										
Cornea, Inflammation, Chronic Active					3																					
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										

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DAY ON TEST	0736	0736	0734	0734	0659	0734	0734	0734	0701	0505	0737	0737	0734	0734	0734	0707	0670	0737	0735	0687	0734	0734	0734	0734	0627	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef																										
ANIMAL ID	00051	00052	00053	00054	00055	00056	00057	00058	00059	00060	00061	00062	00063	00064	00065	00066	00067	00068	00069	00070	00071	00072	00073	00074	00075	**males (cont...)**
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst		2				2					2															
Infarct, Chronic																										
Nephropathy	3	2	3	2	4	2	1	2	2	3	2	2	2	4	1	1	2		4	2	2	1	4	4	4	
Renal Tubule, Hyperplasia, Atypical																										
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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1-4 .. Lesion qualified as:
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DAY ON TEST	0502	0684	0690	0568	0708	0490	0641	0406	0734	0728	0575	0660	0737	0737	0580	0734	0676	0735	0735	0439	0688	0735	0735	0594	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	M	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Clear Cell Focus									X			X		X											X	
Eosinophilic Focus																										
Fatty Change							1				1															
Mixed Cell Focus																										
Hepatocyte, Necrosis											2															
Serosa, Inflammation, Acute							2																			
Oral Mucosa											+								+							
Hyperplasia											1															
Inflammation																			2							
Pancreas	+	+	+	A	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy																										

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DAY ON TEST	0502	0684	0690	0568	0708	0490	0641	0406	0734	0728	0575	0660	0737	0737	0580	0734	0676	0735	0735	0439	0688	0735	0735	0594	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100	**males (cont...)**
Acinus, Basophilic Focus																										
Acinus, Hyperplasia					4								3	4		4		3	2			4	3		3	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer							2																			
Epithelium, Hyperplasia			2				3				2					1				1	2					
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Metaplasia, Squamous																										
Mineralization																	1									
Tooth																										
Malformation																										
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation		2	3	1	2				1	3		1	2			2	2	2	2			2	2		3	
Necrosis		2																								
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy	1	3	2		2			1	1	2		2	1			1	2	1	2			2			1	
Atrium, Thrombosis		3																								
Valve, Inflammation											4															
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																			2							

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DAY ON TEST	0502	0684	0690	0568	0708	0490	0641	0406	0734	0728	0575	0660	0737	0737	0580	0734	0676	0735	0735	0439	0688	0735	0735	0594	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100	**males (cont...)**
Necrosis				1																						
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		3			1							2			1	1						1				
Bilateral, Hyperplasia			1								1								4							
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																					1					
Parathyroid Gland	+	M	M	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	M	+	M	+	+	
Hyperplasia				2													2									
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia			2	1			1						1	1		1		1	2				1	1		
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia			3													4	1		4							
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Penis																	+									
Developmental Malformation																	X									
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 7ppm ZnDef / ANIMAL ID	0502 0076	0684 0077	0690 0078	0568 0079	0708 0080	0490 0081	0641 0082	0406 0083	0734 0084	0728 0085	0575 0086	0660 0087	0737 0088	0737 0089	0580 0090	0734 0091	0676 0092	0735 0093	0735 0094	0439 0095	0688 0096	0735 0097	0735 0098	0594 0099	0734 0100	males (cont...)
Inflammation																										
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia																1										
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germinal Epithelium, Atrophy																										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																					4					
Lymph Node																										
Mediastinal, Atrophy																										
Mediastinal, Hemorrhage																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy															2											
Ectasia																										
Hyperplasia								2					3													
Infiltration Cellular, Plasma Cell			3						2			4									2			3		
Lymph Node, Mesenteric	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation, Granulomatous																										
Spleen	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy				2																						

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
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DAY ON TEST	050	068	069	056	070	049	064	040	073	072	057	060	073	073	058	073	067	073	073	043	068	073	073	059	073
HARLAN SPRAGUE DAWLEY RATS MALE	4	4	0	8	8	0	1	6	4	8	5	0	7	7	0	4	6	5	5	9	8	5	5	4	4
7ppm ZnDef ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100
males (cont...)																									
Hematopoietic Cell Proliferation	1					2		1		1		1	2	2				2	1			2		1	2
Pigmentation, Hemosiderin	2	2	2	3	2	2	3	2	2	2		2	3	2	2	2	3	2	2	1	2	3	3	2	2
Lymphoid Follicle, Atrophy						2											2								
Lymphoid Follicle, Hyperplasia																									
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy	2	3	4	3			3	2	3	3	4	3			2	2	4			1	4			1	
Hyperplasia																						4			2
INTEGUMENTARY SYSTEM																									
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyst Epithelial Inclusion																									X
Inflammation										2		2													
Epidermis, Hyperplasia																		4							
MUSCULOSKELETAL SYSTEM																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Fibrous Osteodystrophy																1									
Skeletal Muscle																									
NERVOUS SYSTEM																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation											1														

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DAY ON TEST	0502	0684	0690	0568	0708	0490	0641	0406	0734	0728	0575	0660	0737	0737	0580	0734	0676	0735	0735	0439	0688	0735	0735	0594	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef																										
ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100	**males (cont...)**
Peripheral Nerve																										
Spinal Cord																										
Axon, Degeneration																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte						3	1	2	2				2					2	2		3	2	1			
Inflammation		3		3							3															
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation								1	1	3																
Olfactory Epithelium, Atrophy																1										
Respiratory Epithelium, Hyperplasia									1							2					1					
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																				3						
Anterior Chamber, Inflammation, Acute							2																			
Bilateral, Cornea, Inflammation, Acute							1				2															
Bilateral, Cornea, Inflammation, Chronic Active																										
Bilateral, Cornea, Necrosis											2															
Cornea, Inflammation, Chronic Active												2														
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				3						

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1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0502	0684	0690	0568	0708	0490	0641	0406	0734	0728	0575	0660	0737	0737	0580	0734	0676	0735	0735	0439	0688	0735	0735	0594	0734	
HARLAN SPRAGUE DAWLEY RATS MALE																										
7ppm ZnDef ANIMAL ID	00076	00077	00078	00079	00080	00081	00082	00083	00084	00085	00086	00087	00088	00089	00090	00091	00092	00093	00094	00095	00096	00097	00098	00099	00100	**males (cont...)**
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																							3			
Infarct, Chronic									2																	
Nephropathy	3	4	4	4	3		3	2	2	4	3	3	3	2	2	3	4	4	4	1	2	2	4	1	2	
Renal Tubule, Hyperplasia, Atypical																							1			
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Intestine Large, Colon											**49**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**50**
Intestine Small, Ileum											**48**
Intestine Small, Jejunum											**50**
Liver											**50**
Clear Cell Focus											**19**
Eosinophilic Focus											**1**
Fatty Change											**5 1.0**
Mixed Cell Focus											**1**
Hepatocyte, Necrosis											**3 2.0**
Serosa, Inflammation, Acute											**1 2.0**
Oral Mucosa											**2**
Hyperplasia											**1 1.0**
Inflammation											**1 2.0**
Pancreas											**48**
Acinus, Atrophy											**4 1.3**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
Acinus, Basophilic Focus											**1**
Acinus, Hyperplasia											**23 2.7**
Salivary Glands											**50**
Stomach, Forestomach											**50**
Ulcer											**1 2.0**
Epithelium, Hyperplasia											**11 2.1**
Stomach, Glandular											**50**
Metaplasia, Squamous											**1 1.0**
Mineralization											**1 1.0**
Tooth											**1**
Malformation											**1 1.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**29 1.8**
Necrosis											**1 2.0**
Heart											**50**
Cardiomyopathy											**39 1.6**
Atrium, Thrombosis											**4 3.8**
Valve, Inflammation											**1 4.0**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Hyperplasia											**7 1.9**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
Necrosis											**1 1.0**
Adrenal Medulla											**50**
Hyperplasia											**14 1.6**
Bilateral, Hyperplasia											**8 1.6**
Islets, Pancreatic											**50**
Hyperplasia											**3 1.0**
Parathyroid Gland											**44**
Hyperplasia											**2 2.0**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**17 1.4**
Thyroid Gland											**50**
C-cell, Hyperplasia											**13 2.8**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Epididymis											**50**
Penis											**1**
Developmental Malformation											**1**
Preputial Gland											**50**

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
Inflammation											**2 4.0**
Prostate											**50**
Epithelium, Hyperplasia											**1 1.0**
Seminal Vesicle											**50**
Testes											**50**
Bilateral, Germinal Epithelium, Atrophy											**1 3.0**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 4.0**
Lymph Node											**4**
Mediastinal, Atrophy											**2 3.0**
Mediastinal, Hemorrhage											**4 3.0**
Lymph Node, Mandibular											**50**
Atrophy											**2 2.0**
Ectasia											**1 4.0**
Hyperplasia											**11 2.5**
Infiltration Cellular, Plasma Cell											**13 2.3**
Lymph Node, Mesenteric											**49**
Inflammation, Granulomatous											**1 2.0**
Spleen											**49**
Atrophy											**1 2.0**

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M .. Missing tissue
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS MALE 7ppm ZnDef	DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	* TOTALS	
	ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520		
Hematopoietic Cell Proliferation												**24**	**1.4**
Pigmentation, Hemosiderin												**49**	**2.0**
Lymphoid Follicle, Atrophy												**3**	**2.3**
Lymphoid Follicle, Hyperplasia												**10**	**1.5**
Thymus												**50**	
Atrophy												**35**	**2.7**
Hyperplasia												**3**	**3.3**
INTEGUMENTARY SYSTEM													
Mammary Gland												**50**	
Skin												**50**	
Cyst Epithelial Inclusion												**1**	
Inflammation												**2**	**2.0**
Epidermis, Hyperplasia												**2**	**4.0**
MUSCULOSKELETAL SYSTEM													
Bone												**50**	
Fibrous Osteodystrophy												**1**	**1.0**
Skeletal Muscle												**1**	
NERVOUS SYSTEM													
Brain												**50**	
Inflammation												**1**	**1.0**

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DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
Peripheral Nerve											**1**
Spinal Cord											**1**
Axon, Degeneration											**1 2.0**
RESPIRATORY SYSTEM											
Lung											**50**
Infiltration Cellular, Histiocyte											**21 1.9**
Inflammation											**7 2.9**
Nose											**50**
Inflammation											**4 1.5**
Olfactory Epithelium, Atrophy											**1 1.0**
Respiratory Epithelium, Hyperplasia											**3 1.3**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**50**
Atrophy											**1 3.0**
Anterior Chamber, Inflammation, Acute											**1 2.0**
Bilateral, Cornea, Inflammation, Acute											**2 1.5**
Bilateral, Cornea, Inflammation, Chronic Active											**2 2.5**
Bilateral, Cornea, Necrosis											**1 2.0**
Cornea, Inflammation, Chronic Active											**2 2.5**
Harderian Gland											**50**
Inflammation											**1 3.0**

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DAY ON TEST	0370	0370	0370	0370	0065	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
7ppm ZnDef											
ANIMAL ID	00511	00512	00513	00514	00515	00516	00517	00518	00519	00520	*** TOTALS**
URINARY SYSTEM											
Kidney											**50**
Cyst											**4 2.3**
Infarct, Chronic											**1 2.0**
Nephropathy											**48 2.7**
Renal Tubule, Hyperplasia, Atypical											**1 1.0**
Urinary Bladder											**50**

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DAY ON TEST	072	067	061	064	055	073	067	047	070	062	036	059	073	068	073	073	073	064	033	073	073	073	046	043	064	
HARLAN SPRAGUE DAWLEY RATS MALE	3	7	5	8	1	4	0	4	0	2	3	3	4	3	5	5	7	5	0	4	5	5	1	6	4	
250ppmModZnExc ANIMAL ID	00151	00152	00153	00154	00155	00156	00157	00158	00159	00160	00161	00162	00163	00164	00165	00166	00167	00168	00169	00170	00171	00172	00173	00174	00175	**males (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus													X													
Clear Cell Focus			X			X							X	X	X	X	X			X	X					
Eosinophilic Focus																						X				
Fatty Change		2																								
Hepatodiaphragmatic Nodule																										
Inflammation																										
Mixed Cell Focus																										
Bile Duct, Hyperplasia						2															4					
Hepatocyte, Necrosis	3																									
Hepatocyte, Vacuolization Cytoplasmic																										
Oral Mucosa																										

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	072300151	067700152	061500153	064800154	055100155	073400156	067000157	047400158	070000159	062200160	036300161	059300162	073400163	068300164	073500165	073500166	073700167	064500168	033000169	073400170	073500171	073500172	046100173	043600174	064400175	males (cont...)
Pancreas	+	+	+	+	+	+	A	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy																										
Acinus, Hyperplasia						1						3	2		4	2		2		3		2			1	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer					1				2																	
Epithelium, Hyperplasia	2	2			3			3		4		2					2	2							2	
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization										2																
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation	3					1		2		1	2			1	3	2		1			1			2	2	
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy	1			1	1	2	1	1	2	2	1	1		2	1	2	1	2		2				2	3	
Mineralization										1																
Atrium, Thrombosis	4											4														
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia														4												
Thrombosis																								1		
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0723 00151	0677 00152	0615 00153	0648 00154	0551 00155	0734 00156	0670 00157	0474 00158	0700 00159	0622 00160	0363 00161	0593 00162	0734 00163	0683 00164	0735 00165	0735 00166	0737 00167	0645 00168	0330 00169	0734 00170	0735 00171	0735 00172	0461 00173	0436 00174	0644 00175	males (cont...)
Hyperplasia		1									4	1	3	1	1	2	2									
Bilateral, Hyperplasia									1									2								
Islets, Pancreatic	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	M	+	+	+	+	M	M	+	+	+	M	+	M	+	+	M	+	+	+	+	M	+	+	+	+	
Hyperplasia										2															2	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia				2						1					4		2					2				
Pars Intermedia, Hyperplasia																										
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization											1															
C-cell, Hyperplasia															1										4	

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration																		2								
Hyperplasia												1														
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0723 00151	0677 00152	0615 00153	0648 00154	0551 00155	0734 00156	0670 00157	0474 00158	0700 00159	0622 00160	0363 00161	0593 00162	0734 00163	0683 00164	0735 00165	0735 00166	0737 00167	0645 00168	0330 00169	0734 00170	0735 00171	0735 00172	0461 00173	0436 00174	0644 00175	males (cont...)
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germ Cell, Degeneration												2														
Germinal Epithelium, Atrophy							4																			
Seminiferous Tubule, Dilation																						2				
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																							4			
Hyperplasia																										
Myelofibrosis																										
Lymph Node		+																						+		
Inguinal, Ectasia																										
Mediastinal, Hemorrhage																								2		
Renal, Hemorrhage																								3		
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy							3			2																
Ectasia																										
Hyperplasia												2														
Infiltration Cellular, Histiocyte																										
Infiltration Cellular, Plasma Cell						2					3	2			1					1		1				
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																		2								
Hyperplasia																										

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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0723 001151	0677 001152	0615 001153	0648 001154	0551 001155	0734 001156	0670 001157	0474 001158	0700 001159	0622 001160	0363 001161	0593 001162	0734 001163	0683 001164	0735 001165	0735 001166	0737 001167	0645 001168	0330 001169	0734 001170	0735 001171	0735 001172	0461 001173	0436 001174	0644 001175	males (cont...)
Inflammation, Granulomatous																										
Spleen	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	2			1		1						1			1			1		2	2	1		1	2	
Pigmentation, Hemosiderin	1		1		1	2		1		2	1	1	2	2	2	1	2	2	1	2		1		1	2	
Capsule, Inflammation		2																								
Lymphoid Follicle, Atrophy										3																
Lymphoid Follicle, Hyperplasia						2		2						2			1							1		
Thymus	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	
Atrophy	4		2			2	4	3	4	4	2	4		3	1	2		4		4	3	3	3	4		
Hyperplasia																	1									
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Dysplasia																										
Fibrosis							3																			
Inflammation																				4						
Ulcer																										
Epidermis, Hyperplasia																										
Hair Follicle, Cyst							X					X								X						
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibrous Osteodystrophy																									3	

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	072	067	061	064	055	073	067	047	070	062	036	059	073	068	073	073	073	064	033	073	073	073	046	043	064	
HARLAN SPRAGUE DAWLEY RATS MALE																										
250ppmModZnExc ANIMAL ID	001511	001522	001533	001544	001555	001566	001577	001588	001599	001600	001611	001622	001633	001644	001655	001666	001677	001688	001699	001700	001711	001722	001733	001744	001755	**males (cont...)**
Skeletal Muscle																										
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema																									2	
Mineralization											1															
Cerebrum, Gliosis					2																					
Cerebrum, Neuron, Necrosis					2																					
Venule, Mineralization																									2	
Peripheral Nerve					+																					
Sciatic, Degeneration					1																					
Spinal Cord					+																					
Axon, Degeneration					1																					
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte						1		3					2		1		1			2	2					
Inflammation	4									2		3						4						4		
Alveolar Epithelium, Hyperplasia																										
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Respiratory Epithelium, Hyperplasia				1												1										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0723 0011 51	0677 0011 52	0615 0011 53	0648 0011 54	0551 0011 55	0734 0011 56	0670 0011 57	0474 0011 58	0700 0011 59	0622 0011 60	0363 0011 61	0593 0011 62	0734 0011 63	0683 0011 64	0735 0011 65	0735 0011 66	0737 0011 67	0645 0011 68	0330 0011 69	0734 0011 70	0735 0011 71	0735 0011 72	0461 0011 73	0436 0011 74	0644 0011 75	males (cont...)
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Bilateral, Cornea, Inflammation, Chronic Active	2																								3	
Bilateral, Cornea, Necrosis																									2	
Cornea, Inflammation, Acute										3									3							
Cornea, Necrosis	2									2									3							
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																		3							3	
Nephropathy	4		1	1	3	3	2	4	2	4	4	4	1	3	3	3	4	4	2	2	2	3	1	4	4	
Pelvis, Inflammation, Chronic Active																										
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Ulcer									3																	

DAY ON TEST	042	068	056	073	073	073	073	063	073	073	056	073	073	068	073	067	073	073	073	063	068	072	073	067	071	
HARLAN SPRAGUE DAWLEY RATS MALE	2	0	2	6	6	4	4	6	5	4	5	4	4	0	7	1	7	6	6	5	0	5	6	0	3	
250ppmModZnExc ANIMAL ID	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	001	002	**males (cont...)**
	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus																										
Clear Cell Focus				X	X	X	X		X	X		X	X				X		X				X		X	
Eosinophilic Focus																										
Fatty Change																2										
Hepatodiaphragmatic Nodule											X															
Inflammation																2										
Mixed Cell Focus					X																					
Bile Duct, Hyperplasia																2										
Hepatocyte, Necrosis																										
Hepatocyte, Vacuolization Cytoplasmic								2																		
Oral Mucosa																								+		

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
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A .. Autolysis precludes evaluation
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 00176	0680 00177	0562 00178	0736 00179	0736 00180	0734 00181	0734 00182	0636 00183	0735 00184	0734 00185	0565 00186	0734 00187	0734 00188	0680 00189	0737 00190	0671 00191	0737 00192	0736 00193	0736 00194	0635 00195	0680 00196	0725 00197	0736 00198	0670 00199	0713 00200	males (cont...)
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy											1					2			1							
Acinus, Hyperplasia				1			4	2	2	3				3	3			3	1	2			4		4	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer																										
Epithelium, Hyperplasia				3	2		1							4								2				
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																										
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation		1		1		2	2	1		2				1			1	2		1	1	1	1	1	1	
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy		2		2		2	2	2	2	2		1	2	2	1	2	1			3		1	2		3	
Mineralization																										
Atrium, Thrombosis		4																								
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia					2							2				2						2				
Thrombosis																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 0176	0680 0177	0562 0178	0736 0179	0736 0180	0734 0181	0734 0182	0636 0183	0735 0184	0734 0185	0565 0186	0734 0187	0734 0188	0680 0189	0737 0190	0671 0191	0737 0192	0736 0193	0736 0194	0635 0195	0680 0196	0725 0197	0736 0198	0670 0199	0713 0200	males (cont...)
Hyperplasia		1				1	2							3									2	2	3	
Bilateral, Hyperplasia										3										1						
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	M	+	
Hyperplasia		2												2						2			1			
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia					4	1			2		3		1			2				1				2		
Pars Intermedia, Hyperplasia																4										
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																										
C-cell, Hyperplasia				1		1					4				4				2		1	1		4		

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration		2																								
Hyperplasia																										
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation															4											

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 00176	0680 00177	0562 00178	0736 00179	0736 00180	0734 00181	0734 00182	0636 00183	0735 00184	0734 00185	0565 00186	0734 00187	0734 00188	0680 00189	0737 00190	0671 00191	0737 00192	0736 00193	0736 00194	0635 00195	0680 00196	0725 00197	0736 00198	0670 00199	0713 00200	males (cont...)
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germ Cell, Degeneration																										
Germinal Epithelium, Atrophy									3		1															
Seminiferous Tubule, Dilation																										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia	2																									
Myelofibrosis		1																								
Lymph Node															+											
Inguinal, Ectasia															4											
Mediastinal, Hemorrhage																										
Renal, Hemorrhage																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Ectasia				2																						
Hyperplasia	4		2			2			2		2		2				2		2				2			
Infiltration Cellular, Histiocyte											1															
Infiltration Cellular, Plasma Cell						2		1							2	2	2							3		
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia	3		2																							

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 0017 76	0680 0017 77	0562 0017 78	0736 0017 79	0736 0018 80	0734 0018 81	0734 0018 82	0636 0018 83	0735 0018 84	0734 0018 85	0565 0018 86	0734 0018 87	0734 0018 88	0680 0018 89	0737 0019 00	0671 0019 01	0737 0019 02	0736 0019 03	0736 0019 04	0635 0019 05	0680 0019 06	0725 0019 07	0736 0019 08	0670 0019 99	0713 0020 00	males (cont...)
Inflammation, Granulomatous									2																	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	3	2	1			2	1		1	2		2	1		2		2	2	2			2	2			
Pigmentation, Hemosiderin		2	2	2	2	2	1	2	2	2	2	1	2			2	1	2		1	2	1	2	2	2	
Capsule, Inflammation																										
Lymphoid Follicle, Atrophy											2									2						
Lymphoid Follicle, Hyperplasia				1												2		2								
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	
Atrophy	2	4	2	3	3		3			3	4	3	3		4		3	4	3	4		4		2	4	
Hyperplasia																										
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	M	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Dysplasia									4																	
Fibrosis																										
Inflammation																										
Ulcer																1										
Epidermis, Hyperplasia																		4								
Hair Follicle, Cyst				X													X									
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Fibrous Osteodystrophy																										

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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 001176	0680 001177	0562 001178	0736 001179	0736 001180	0734 001181	0734 001182	0636 001183	0735 001184	0734 001185	0565 001186	0734 001187	0734 001188	0680 001189	0737 001190	0671 001191	0737 001192	0736 001193	0736 001194	0635 001195	0680 001196	0725 001197	0736 001198	0670 001199	0713 002000	males (cont...)
Skeletal Muscle			+																			+				
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema																										
Mineralization																										
Cerebrum, Gliosis																										
Cerebrum, Neuron, Necrosis																										
Venule, Mineralization																										
Peripheral Nerve																										
Sciatic, Degeneration																										
Spinal Cord																										
Axon, Degeneration																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	1			1				2		2					3	2			1							
Inflammation		4																		3		2	2		1	
Alveolar Epithelium, Hyperplasia												2														
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation												1											1			
Respiratory Epithelium, Hyperplasia																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 250ppmModZnExc / ANIMAL ID	0420 00176	0680 00177	0562 00178	0736 00179	0736 00180	0734 00181	0734 00182	0636 00183	0735 00184	0734 00185	0565 00186	0734 00187	0734 00188	0680 00189	0737 00190	0671 00191	0737 00192	0736 00193	0736 00194	0635 00195	0680 00196	0725 00197	0736 00198	0670 00199	0713 00200	males (cont...)
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy														3												
Bilateral, Cornea, Inflammation, Chronic Active																							3			
Bilateral, Cornea, Necrosis																										
Cornea, Inflammation, Acute																										
Cornea, Necrosis																										
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst								4															2			
Nephropathy	1	4	1	3	1	2	3	3	3	3	1	2	1	3	3	1	2	4	1	4	2	2	4	3	3	
Pelvis, Inflammation, Chronic Active																	2									
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation															2											
Ulcer																										

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Intestine Large, Colon											**50**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**49**
Intestine Small, Ileum											**50**
Intestine Small, Jejunum											**50**
Liver											**50**
Basophilic Focus											**1**
Clear Cell Focus											**21**
Eosinophilic Focus											**1**
Fatty Change											**2 2.0**
Hepatodiaphragmatic Nodule											**1**
Inflammation											**1 2.0**
Mixed Cell Focus											**1**
Bile Duct, Hyperplasia											**3 2.7**
Hepatocyte, Necrosis											**1 3.0**
Hepatocyte, Vacuolization Cytoplasmic											**1 2.0**
Oral Mucosa											**1**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
Pancreas											**48**
Acinus, Atrophy											**3 1.3**
Acinus, Hyperplasia											**21 2.5**
Salivary Glands											**50**
Stomach, Forestomach											**50**
Ulcer											**2 1.5**
Epithelium, Hyperplasia											**14 2.4**
Stomach, Glandular											**50**
Mineralization											**1 2.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**27 1.5**
Heart											**50**
Cardiomyopathy											**35 1.7**
Mineralization											**1 1.0**
Atrium, Thrombosis											**3 4.0**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Hyperplasia											**5 2.4**
Thrombosis											**1 1.0**
Adrenal Medulla											**50**

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
Hyperplasia											**15 1.9**
Bilateral, Hyperplasia											**4 1.8**
Islets, Pancreatic											**49**
Parathyroid Gland											**40**
Hyperplasia											**6 1.8**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**13 2.1**
Pars Intermedia, Hyperplasia											**1 4.0**
Thyroid Gland											**50**
Mineralization											**1 1.0**
C-cell, Hyperplasia											**10 2.3**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Epididymis											**50**
Degeneration											**2 2.0**
Hyperplasia											**1 1.0**
Preputial Gland											**50**
Prostate											**50**
Inflammation											**1 4.0**

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
Seminal Vesicle											**50**
Testes											**50**
Bilateral, Germ Cell, Degeneration											**1 2.0**
Germinal Epithelium, Atrophy											**3 2.7**
Seminiferous Tubule, Dilation											**1 2.0**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 4.0**
Hyperplasia											**1 2.0**
Myelofibrosis											**1 1.0**
Lymph Node											**3**
Inguinal, Ectasia											**1 4.0**
Mediastinal, Hemorrhage											**1 2.0**
Renal, Hemorrhage											**1 3.0**
Lymph Node, Mandibular											**50**
Atrophy											**2 2.5**
Ectasia											**1 2.0**
Hyperplasia											**10 2.2**
Infiltration Cellular, Histiocyte											**1 1.0**
Infiltration Cellular, Plasma Cell											**12 1.8**
Lymph Node, Mesenteric											**50**
Atrophy											**1 2.0**
Hyperplasia											**2 2.5**

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X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
Inflammation, Granulomatous											**1 2.0**
Spleen											**48**
Hematopoietic Cell Proliferation											**26 1.6**
Pigmentation, Hemosiderin											**40 1.6**
Capsule, Inflammation											**1 2.0**
Lymphoid Follicle, Atrophy											**3 2.3**
Lymphoid Follicle, Hyperplasia											**8 1.6**
Thymus											**47**
Atrophy											**36 3.2**
Hyperplasia											**1 1.0**
INTEGUMENTARY SYSTEM											
Mammary Gland											**48**
Skin											**50**
Dysplasia											**1 4.0**
Fibrosis											**1 3.0**
Inflammation											**1 4.0**
Ulcer											**1 1.0**
Epidermis, Hyperplasia											**1 4.0**
Hair Follicle, Cyst											**5**
MUSCULOSKELETAL SYSTEM											
Bone											**50**
Fibrous Osteodystrophy											**1 3.0**

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I .. Insufficient tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
Skeletal Muscle											**2**
NERVOUS SYSTEM											
Brain											**50**
Edema											**1 2.0**
Mineralization											**1 1.0**
Cerebrum, Gliosis											**1 2.0**
Cerebrum, Neuron, Necrosis											**1 2.0**
Venule, Mineralization											**1 2.0**
Peripheral Nerve											**1**
Sciatic, Degeneration											**1 1.0**
Spinal Cord											**1**
Axon, Degeneration											**1 1.0**
RESPIRATORY SYSTEM											
Lung											**50**
Infiltration Cellular, Histiocyte											**14 1.7**
Inflammation											**10 2.9**
Alveolar Epithelium, Hyperplasia											**1 2.0**
Nose											**50**
Inflammation											**2 1.0**
Respiratory Epithelium, Hyperplasia											**2 1.0**
Trachea											**50**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	370	370	370	370	370	370	370	370	370	370	
HARLAN SPRAGUE DAWLEY RATS MALE											
250ppmModZnExc											
ANIMAL ID	00531	00532	00533	00534	00535	00536	00537	00538	00539	00540	*** TOTALS**
SPECIAL SENSES SYSTEM											
Eye											**50**
Atrophy											**1 3.0**
Bilateral, Cornea, Inflammation, Chronic Active											**3 2.7**
Bilateral, Cornea, Necrosis											**1 2.0**
Cornea, Inflammation, Acute											**2 3.0**
Cornea, Necrosis											**3 2.3**
Harderian Gland											**50**
URINARY SYSTEM											
Kidney											**50**
Cyst											**4 3.0**
Nephropathy											**49 2.6**
Pelvis, Inflammation, Chronic Active											**1 2.0**
Urinary Bladder											**50**
Inflammation											**1 2.0**
Ulcer											**1 3.0**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS MALE
500ppm ZnExc

DAY ON TEST	071 5	036 2	073 4	070 4	073 4	041 2	073 4	064 2	073 4	073 4	040 5	064 9	073 4	073 4	062 8	073 5	073 4	073 4	073 5	073 5	054 1	073 7	073 4	068 1	052 6	
ANIMAL ID	0020 01	0020 02	0020 03	0020 04	0020 05	0020 06	0020 07	0020 08	0020 09	0021 10	0021 11	0021 12	0021 13	0021 14	0021 15	0021 16	0021 17	0021 18	0021 19	0022 20	0022 21	0022 22	0022 23	0022 24	0022 25	**males (cont...)**

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	A	+	+	+	+	
Epithelium, Necrosis																										
Intestine Large, Colon	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parasite Metazoan																										
Intestine Large, Rectum	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	A	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	A	+	+	+	+	+	+	+	+	A	+	+	+	A	+	+	+	+	+	A	+	+	+	+	
Intestine Small, Jejunum	+	A	+	+	+	+	+	+	+	+	A	+	+	+	A	+	+	+	+	+	+	+	+	+	+	
Peyer's Patch, Hyperplasia																						2				
Liver	+	A	+	A	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	
Atrophy																							2			
Clear Cell Focus			X		X		X	X	X	X			X	X		X	X		X	X		X	X		X	
Fatty Change										1						1						1				
Hematopoietic Cell Proliferation																										
Inflammation																										
Hepatocyte, Vacuolization Cytoplasmic												3														
Oral Mucosa																										
Hyperplasia																										

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE 500ppm ZnExc / ANIMAL ID	0715 0010 01	0362 0020 02	0734 0020 03	0704 0020 04	0734 0020 05	0412 0020 06	0734 0020 07	0642 0020 08	0734 0020 09	0734 0021 10	0405 0021 11	0649 0021 12	0734 0021 13	0734 0021 14	0628 0021 15	0735 0021 16	0734 0021 17	0734 0021 18	0735 0021 19	0735 0022 20	0541 0022 21	0737 0022 22	0734 0022 23	0681 0022 24	0526 0022 25	males (cont...)
Pancreas	+	A	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation, Acute																										
Inflammation, Chronic Active													2													
Acinus, Atrophy			1							1		4	1	1				1		2		1		2		
Acinus, Basophilic Focus																	X									
Acinus, Hyperplasia	3		1		3	1	2	1		4			2	2	2	3		1	2	3		3	2			
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer												2														
Epithelium, Hyperplasia										2		3	1									1				
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																										
Tongue																										
Hemorrhage																										
Inflammation, Chronic																										
Ulcer																										
Tooth																							+	+		
Inflammation																							3			
Necrosis																							1	1		
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation	2				1		1			1				1				2	1			1	1	2		

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 500ppm ZnExc / ANIMAL ID	071 5	036 2	073 4	070 4	073 4	041 2	073 4	064 2	073 4	073 4	040 5	064 9	073 4	073 4	062 8	073 5	073 4	073 4	073 5	073 5	054 1	073 7	073 4	068 1	052 6	males (cont...)
	0020 1	0020 2	0020 3	0020 4	0020 5	0020 6	0020 7	0020 8	0020 9	0021 0	0021 1	0021 2	0021 3	0021 4	0021 5	0021 6	0021 7	0021 8	0021 9	0022 0	0022 1	0022 2	0022 3	0022 4	0022 5	
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy	2			2	1	1	1		1	1		3	1	2	1		3	2				2	1	1		
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia														2					3					3		
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia				1										3			2		1				1			
Bilateral, Hyperplasia					1							2	1													
Islets, Pancreatic	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia								1											1							
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	M	+	+	M	M	+	
Hyperplasia	2						2					2														
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	
Inflammation																									2	
Pars Distalis, Hyperplasia	1					2				2			2				4	4					1			
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia			3				1							1				1					1	4	1	
Follicular Cell, Hyperplasia												1														
GENERAL BODY SYSTEM																										
NONE																										

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DAY ON TEST	071 5	036 2	073 4	070 4	073 4	041 2	073 4	064 2	073 4	073 4	040 5	064 9	073 4	073 4	062 8	073 5	073 4	073 4	073 5	073 5	054 1	073 7	073 4	068 1	052 6	
HARLAN SPRAGUE DAWLEY RATS MALE																										
500ppm ZnExc ANIMAL ID	0020 01	0020 02	0020 03	0020 04	0020 05	0020 06	0020 07	0020 08	0020 09	0021 10	0021 11	0021 12	0021 13	0021 14	0021 15	0021 16	0021 17	0021 18	0021 19	0022 20	0022 21	0022 22	0022 23	0022 24	0022 25	**males (cont...)**
GENITAL SYSTEM																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germ Cell, Degeneration																										
Bilateral, Germinal Epithelium, Atrophy																										
Germinal Epithelium, Atrophy									4							1										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		2					2																			
Hyperplasia																										
Lymph Node																										
Mediastinal, Ectasia																										
Pancreatic, Hemorrhage																										
Pancreatic, Hyperplasia																										
Lymph Node, Mandibular	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy											3															
Hyperplasia					3					2						2		1		2						
Infiltration Cellular, Plasma Cell																				2		1	2		2	

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DAY ON TEST	071 5	036 2	073 4	070 4	073 4	041 2	073 4	064 2	073 4	073 4	040 5	064 9	073 4	073 4	062 8	073 5	073 4	073 4	073 5	073 5	054 1	073 7	073 4	068 1	052 6	
HARLAN SPRAGUE DAWLEY RATS MALE																										
500ppm ZnExc ANIMAL ID	0002 01	0002 02	0002 03	0002 04	0002 05	0002 06	0002 07	0002 08	0002 09	0002 10	0002 11	0002 12	0002 13	0002 14	0002 15	0002 16	0002 17	0002 18	0002 19	0002 20	0002 21	0002 22	0002 23	0002 24	0002 25	**males (cont...)**
Lymph Node, Mesenteric	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia													2	2												
Spleen	+	A	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	2		1		1	2	1			1		2				1	1			1		1		1		
Pigmentation, Hemosiderin	2			3	3	1	1		2	2	2		2			2	2	3	2	2		2	1	1	2	
Lymphoid Follicle, Atrophy				3							2															
Lymphoid Follicle, Hyperplasia																		2								
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	
Atrophy		2	2	4	3	2	2	3		3	2	4		3	4	3	2	1		2	1		2	3		
Hyperplasia																			2							
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion										X																
Ulcer			4												3											
Hair Follicle, Cyst	X																									
Pinna, Hyperplasia, Squamous																										
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 500ppm ZnExc / ANIMAL ID	0715 0020 01	0362 0020 02	0734 0020 03	0704 0020 04	0734 0020 05	0412 0020 06	0734 0020 07	0642 0020 08	0734 0020 09	0734 0021 0	0405 0021 1	0649 0021 2	0734 0021 3	0734 0021 4	0628 0021 5	0735 0021 6	0734 0021 7	0734 0021 8	0735 0021 9	0735 0022 0	0541 0022 1	0737 0022 2	0734 0022 3	0681 0022 4	0526 0022 5	**males (cont...)**
Edema	2																									
Cerebrum, Gliosis																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																										
Infiltration Cellular, Histiocyte													3					2	1	3		1	1			
Inflammation																	1	3								
Nose	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Respiratory Epithelium, Hyperplasia																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	
Bilateral, Cornea, Inflammation, Chronic Active	3																									
Cornea, Inflammation, Acute																										
Cornea, Inflammation, Chronic Active																										
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infarct, Chronic														2	2				2							
Nephropathy	4	1	1	3	3	3	2	1	2	2	1	4	2	2	1	1	2	4	2	1	2	2	3	3	2	

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HARLAN SPRAGUE DAWLEY RATS MALE

500ppm ZnExc

DAY ON TEST	071 5	036 2	073 4	070 4	073 4	041 2	073 4	064 2	073 4	073 4	040 5	064 9	073 4	073 4	062 8	073 5	073 4	073 4	073 5	073 5	054 1	073 7	073 4	068 1	052 6	
ANIMAL ID	0020 01	0020 02	0020 03	0020 04	0020 05	0020 06	0020 07	0020 08	0020 09	0021 10	0021 11	0021 12	0021 13	0021 14	0021 15	0021 16	0021 17	0021 18	0021 19	0022 20	0022 21	0022 22	0022 23	0022 24	0022 25	**males (cont...)**
Urinary Bladder	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

DAY ON TEST	0665	0649	0597	0637	0418	0691	0718	0645	0734	0599	0660	0729	0704	0669	0735	0707	0737	0737	0715	0593	0717	0355	0735	0707	0735
HARLAN SPRAGUE DAWLEY RATS MALE																									
500ppm ZnExc ANIMAL ID	00226	00227	00228	00229	00230	00231	00232	00233	00234	00235	00236	00237	00238	00239	00240	00241	00242	00243	00244	00245	00246	00247	00248	00249	00250
ALIMENTARY SYSTEM																									
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Epithelium, Necrosis																			2						
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parasite Metazoan																						1			
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Peyer's Patch, Hyperplasia																									
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+
Atrophy																									
Clear Cell Focus	X	X									X				X		X	X					X		X
Fatty Change								3																	
Hematopoietic Cell Proliferation		1																							
Inflammation					3																				
Hepatocyte, Vacuolization Cytoplasmic																									
Oral Mucosa																					+				
Hyperplasia																					2				

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 500ppm ZnExc / ANIMAL ID	0665 00226	0649 00227	0597 00228	0637 00229	0418 00230	0691 00231	0718 00232	0645 00233	0734 00234	0599 00235	0660 00236	0729 00237	0704 00238	0669 00239	0735 00240	0707 00241	0737 00242	0737 00243	0715 00244	0593 00245	0717 00246	0355 00247	0735 00248	0707 00249	0735 00250	**males (cont...)**
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation, Acute					2																					
Inflammation, Chronic Active																										
Acinus, Atrophy									1		2				1		2									
Acinus, Basophilic Focus																		X								
Acinus, Hyperplasia	4						1		3			3	2	2	1	3		2			3		3		2	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer							2																			
Epithelium, Hyperplasia	1										2								1							
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																				1						
Tongue																									+	
Hemorrhage																									1	
Inflammation, Chronic																									2	
Ulcer																									2	
Tooth																										
Inflammation																										
Necrosis																										
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation						2	2					1		1		1					2					

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DAY ON TEST	0665	0649	0597	0637	0418	0691	0718	0645	0734	0599	0660	0729	0704	0669	0735	0707	0737	0737	0715	0593	0717	0355	0735	0707	0735
HARLAN SPRAGUE DAWLEY RATS MALE																									
500ppm ZnExc																									
ANIMAL ID	00226	00227	00228	00229	00230	00231	00232	00233	00234	00235	00236	00237	00238	00239	00240	00241	00242	00243	00244	00245	00246	00247	00248	00249	00250
males (cont...)																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiomyopathy	1	1		2		2	1				1	2	2	2		1			2	1	2	2	2	3	
ENDOCRINE SYSTEM																									
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia											2							2							
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia	1					1	2			2								1							1
Bilateral, Hyperplasia																			2				1		
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy	3																								
Hyperplasia							4									1									
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	M	M	+	+	+	+	M	+	+	+
Hyperplasia							2											2							
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Pars Distalis, Hyperplasia		1					2			2					1	2			1				4	1	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, Hyperplasia		2		1											2		2			1					
Follicular Cell, Hyperplasia																									
GENERAL BODY SYSTEM																									
NONE																									

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DAY ON TEST	0665	0649	0597	0637	0418	0691	0718	0645	0734	0599	0660	0729	0704	0669	0735	0707	0737	0737	0715	0593	0717	0355	0735	0707	0735	
HARLAN SPRAGUE DAWLEY RATS MALE																										
500ppm ZnExc ANIMAL ID	00226	00227	00228	00229	00230	00231	00232	00233	00234	00235	00236	00237	00238	00239	00240	00241	00242	00243	00244	00245	00246	00247	00248	00249	00250	**males (cont...)**
GENITAL SYSTEM																										
Epididymis	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Preputial Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Prostate	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Seminal Vesicle	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Testes	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Germ Cell, Degeneration								2																		
Bilateral, Germinal Epithelium, Atrophy																			3							
Germinal Epithelium, Atrophy	3	3																								
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia		2																								
Lymph Node												+											+			
Mediastinal, Ectasia												1														
Pancreatic, Hemorrhage																							3			
Pancreatic, Hyperplasia																							2			
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy				2																						
Hyperplasia						2					2					3	2					3	2			
Infiltration Cellular, Plasma Cell	2							2						2	2			2			3					

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS MALE / 500ppm ZnExc / ANIMAL ID	0665 00226	0649 00227	0597 00228	0637 00229	0418 00230	0691 00231	0718 00232	0645 00233	0734 00234	0599 00235	0660 00236	0729 00237	0704 00238	0669 00239	0735 00240	0707 00241	0737 00242	0737 00243	0715 00244	0593 00245	0717 00246	0355 00247	0735 00248	0707 00249	0735 00250	males (cont...)
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia			2				2																			
Spleen	+	+	+	+	A	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	A	+	
Hematopoietic Cell Proliferation		2	3				1			1	1				1	1		1		2	2		1		2	
Pigmentation, Hemosiderin	2		1			2	1	2	1	2					2	3	2	1	1	2	3	2	2			
Lymphoid Follicle, Atrophy				2															3							
Lymphoid Follicle, Hyperplasia		2									1															
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	
Atrophy			4	4	4	4	2	3	3	4			2	2	1	3	3	3		4	2			2	2	
Hyperplasia																										
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst Epithelial Inclusion			3																							
Ulcer																										
Hair Follicle, Cyst													X													
Pinna, Hyperplasia, Squamous																					4					
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0665	0649	0597	0637	0418	0691	0718	0645	0734	0599	0660	0729	0704	0669	0735	0707	0737	0737	0715	0593	0717	0355	0735	0707	0735	
HARLAN SPRAGUE DAWLEY RATS MALE																										
500ppm ZnExc ANIMAL ID	00226	00227	00228	00229	00230	00231	00232	00233	00234	00235	00236	00237	00238	00239	00240	00241	00242	00243	00244	00245	00246	00247	00248	00249	00250	**males (cont...)**
Edema																										
Cerebrum, Gliosis																	3									
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage			4																							
Infiltration Cellular, Histiocyte		1											1				2	2	2	2				1	2	
Inflammation						3	3																			
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation			1	1			1						1													
Respiratory Epithelium, Hyperplasia		1																								
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Bilateral, Cornea, Inflammation, Chronic Active																										
Cornea, Inflammation, Acute						1																				
Cornea, Inflammation, Chronic Active							2																			
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infarct, Chronic																										
Nephropathy	2	1	1		1	4	3	2	1	2	1	4	2	3	2	2	1	1	3	2	3	2	2	1	2	

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DAY ON TEST	0665	0649	0597	0637	0418	0691	0718	0645	0734	0599	0660	0729	0704	0669	0735	0707	0737	0737	0715	0593	0717	0355	0735	0707	0735	
HARLAN SPRAGUE DAWLEY RATS MALE																										
500ppm ZnExc																										
ANIMAL ID	00226	00227	00228	00229	00230	00231	00232	00233	00234	00235	00236	00237	00238	00239	00240	00241	00242	00243	00244	00245	00246	00247	00248	00249	00250	**males (cont...)**
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc											
ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**47**
Epithelium, Necrosis											**1 2.0**
Intestine Large, Colon											**48**
Parasite Metazoan											**1 1.0**
Intestine Large, Rectum											**48**
Intestine Small, Duodenum											**48**
Intestine Small, Ileum											**45**
Intestine Small, Jejunum											**47**
Peyer's Patch, Hyperplasia											**1 2.0**
Liver											**46**
Atrophy											**1 2.0**
Clear Cell Focus											**23**
Fatty Change											**4 1.5**
Hematopoietic Cell Proliferation											**1 1.0**
Inflammation											**1 3.0**
Hepatocyte, Vacuolization Cytoplasmic											**1 3.0**
Oral Mucosa											**1**
Hyperplasia											**1 2.0**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc											
ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
Pancreas											**48**
Inflammation, Acute											**1 2.0**
Inflammation, Chronic Active											**1 2.0**
Acinus, Atrophy											**13 1.5**
Acinus, Basophilic Focus											**2**
Acinus, Hyperplasia											**28 2.3**
Salivary Glands											**49**
Stomach, Forestomach											**49**
Ulcer											**2 2.0**
Epithelium, Hyperplasia											**7 1.6**
Stomach, Glandular											**49**
Mineralization											**1 1.0**
Tongue											**1**
Hemorrhage											**1 1.0**
Inflammation, Chronic											**1 2.0**
Ulcer											**1 2.0**
Tooth											**2**
Inflammation											**1 3.0**
Necrosis											**2 1.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**16 1.4**

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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
Heart											**50**
Cardiomyopathy											**32 1.6**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Hyperplasia											**5 2.4**
Adrenal Medulla											**50**
Hyperplasia											**11 1.5**
Bilateral, Hyperplasia											**5 1.4**
Islets, Pancreatic											**49**
Atrophy											**1 3.0**
Hyperplasia											**4 1.8**
Parathyroid Gland											**42**
Hyperplasia											**5 2.0**
Pituitary Gland											**49**
Inflammation											**1 2.0**
Pars Distalis, Hyperplasia											**15 2.0**
Thyroid Gland											**49**
C-cell, Hyperplasia											**12 1.7**
Follicular Cell, Hyperplasia											**1 1.0**
GENERAL BODY SYSTEM											
NONE											

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A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc											
ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
GENITAL SYSTEM											
Epididymis											**50**
Preputial Gland											**50**
Prostate											**50**
Seminal Vesicle											**50**
Testes											**50**
Bilateral, Germ Cell, Degeneration											**1 2.0**
Bilateral, Germinal Epithelium, Atrophy											**1 3.0**
Germinal Epithelium, Atrophy											**4 2.8**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**2 2.0**
Hyperplasia											**1 2.0**
Lymph Node											**2**
Mediastinal, Ectasia											**1 1.0**
Pancreatic, Hemorrhage											**1 3.0**
Pancreatic, Hyperplasia											**1 2.0**
Lymph Node, Mandibular											**48**
Atrophy											**2 2.5**
Hyperplasia											**11 2.2**
Infiltration Cellular, Plasma Cell											**10 2.0**

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1-4 .. Lesion qualified as:
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DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
Lymph Node, Mesenteric											**49**
Hyperplasia											**4 2.0**
Spleen											**45**
Hematopoietic Cell Proliferation											**24 1.4**
Pigmentation, Hemosiderin											**34 1.9**
Lymphoid Follicle, Atrophy											**4 2.5**
Lymphoid Follicle, Hyperplasia											**3 1.7**
Thymus											**48**
Atrophy											**37 2.7**
Hyperplasia											**1 2.0**
INTEGUMENTARY SYSTEM											
Mammary Gland											**49**
Skin											**50**
Cyst Epithelial Inclusion											**2 3.0**
Ulcer											**2 3.5**
Hair Follicle, Cyst											**2**
Pinna, Hyperplasia, Squamous											**1 4.0**
MUSCULOSKELETAL SYSTEM											
Bone											**50**
NERVOUS SYSTEM											
Brain											**50**

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	037	037	037	037	037	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
Edema											**1 2.0**
Cerebrum, Gliosis											**1 3.0**
RESPIRATORY SYSTEM											
Lung											**50**
Hemorrhage											**1 4.0**
Infiltration Cellular, Histiocyte											**14 1.7**
Inflammation											**4 2.5**
Nose											**49**
Inflammation											**4 1.0**
Respiratory Epithelium, Hyperplasia											**1 1.0**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**49**
Bilateral, Cornea, Inflammation, Chronic Active											**1 3.0**
Cornea, Inflammation, Acute											**1 1.0**
Cornea, Inflammation, Chronic Active											**1 2.0**
Harderian Gland											**49**
URINARY SYSTEM											
Kidney											**50**
Infarct, Chronic											**3 2.0**
Nephropathy											**49 2.1**

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS MALE											
500ppm ZnExc											
ANIMAL ID	00541	00542	00543	00544	00545	00546	00547	00548	00549	00550	*** TOTALS**
Urinary Bladder											**49**

*** END OF MALE DATA ***

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST	067	076	072	054	072	072	072	072	065	025	072	069	046	072	043	072	072	072	072	072	072	056	063	072	072	
ANIMAL ID	00351	00352	00353	00354	00355	00356	00357	00358	00359	00360	00361	00362	00363	00364	00365	00366	00367	00368	00369	00370	00371	00372	00373	00374	00375	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus																										
Clear Cell Focus																				X						
Fatty Change		1					1					1	1													
Hematopoietic Cell Proliferation								2																		
Hepatodiaphragmatic Nodule																										
Inflammation																										
Hepatocyte, Vacuolization Cytoplasmic																							3			
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy			2																							
Acinus, Hyperplasia																					1					
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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1) Minimal 3) Moderate
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HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST / ANIMAL ID	0677 0351	0676 0352	0726 0353	0540 0354	0727 0355	0727 0356	0727 0357	0727 0358	0656 0359	0253 0360	0725 0361	0690 0362	0469 0363	0726 0364	0435 0365	0726 0366	0725 0367	0725 0368	0725 0369	0725 0370	0725 0371	0568 0372	0635 0373	0725 0374	0726 0375
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Edema																						2			
Ulcer																									
Epithelium, Hyperplasia													2												
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Erosion																									
Tooth																									
Necrosis																									
CARDIOVASCULAR SYSTEM																									
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiomyopathy		2										2		1								2			1
Endocardium, Fibrosis								1																	
Myocardium, Inflammation, Chronic Active																									
ENDOCRINE SYSTEM																									
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Degeneration, Cystic							2										1				1				
Hyperplasia	1	1			1									1	1										
Necrosis													1												
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia			1		1		2					1													

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2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST / ANIMAL ID	0677 0031	0676 0032	0726 0033	0540 0034	0727 0035	0727 0036	0727 0037	0727 0038	0656 0039	0253 0040	0725 0041	0690 0042	0469 0043	0726 0044	0435 0045	0726 0046	0725 0047	0725 0048	0725 0049	0725 0050	0725 0051	0725 0052	0568 0053	0635 0054	0725 0055	0726 0056	**females (cont...)**
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	M	+	+	+	+	+	M	+	+	M	+	+	+	+	+	+	+	+	+	M	M	+	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis								2																			
Pars Distalis, Hyperplasia						2								3					2		2				2	2	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia	2	1									1		1			2	2			2	1				2	2	

GENERAL BODY SYSTEM

NONE

GENITAL SYSTEM

Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2			3	3		1	2	2		3	3		3		2	4	2			2				2	3	
Cyst									X								X		X		X						
Inflammation																											
Granulosa Cell, Hyperplasia																	2										
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																						2					
Metaplasia, Squamous								2	1		4			1		1		1			1				1		
Pigmentation, Hemosiderin																		2									
Thrombosis																											

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / Control (38ppm) / ANIMAL ID	067 7 0035 1	067 6 0035 2	072 6 0035 3	054 0 0035 4	072 7 0035 5	072 7 0035 6	072 7 0035 7	072 7 0035 8	065 6 0035 9	025 3 0036 0	072 5 0036 1	069 0 0036 2	046 9 0036 3	072 6 0036 4	043 5 0036 5	072 6 0036 6	072 5 0036 7	072 5 0036 8	072 5 0036 9	072 5 0037 0	072 5 0037 1	056 8 0037 2	063 5 0037 3	072 5 0037 4	072 6 0037 5	females (cont...)
Cervix, Hypertrophy																							3			
Endometrium, Hyperplasia, Cystic	2				2									2							2			1	4	
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy													2													
Hyperplasia				2	2		2	2			2											2	2			
Lymph Node																										
Mediastinal, Hemorrhage																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		2										2			2					2						
Infiltration Cellular, Plasma Cell			2	3				2		2					2	2			3			3				
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Infiltration Cellular, Histiocyte																									2	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation		2	1	4	1						1			2	2	1	1	1	3			3	2	2		
Hemorrhage																						1				
Pigmentation, Hemosiderin	3	1	3		2	2	1		3	2	3	3	3		2	3	3	3	2	2	2	1		2	1	
Lymphoid Follicle, Atrophy																										
Lymphoid Follicle, Hyperplasia		1			1			1							1				1	1						
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy			3	2	2	2	2	1	2		2	2		2		2	1	2	3	2	1	2		2	2	

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2) Mild 4) Marked

DAY ON TEST	067	067	072	054	072	072	072	072	065	025	072	069	046	072	043	072	072	072	072	072	072	056	063	072	072	
HARLAN SPRAGUE DAWLEY RATS FEMALE	6	6	6	0	7	7	7	7	6	3	5	0	9	6	5	6	5	5	5	5	5	8	5	5	6	
Control (38ppm) ANIMAL ID	00351	00352	00353	00354	00355	00356	00357	00358	00359	00360	00361	00362	00363	00364	00365	00366	00367	00368	00369	00370	00371	00372	00373	00374	00375	**females (cont...)**
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	4																									
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																										
Cerebrum, Gliosis													2													
Glial Cell, Hyperplasia																							1			
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	2	1	3	2	3		1	2	1		3		2			2	2	1	2	2	3	3	3	3		
Alveolar Epithelium, Hyperplasia																										
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / Control (38ppm) ANIMAL ID	0677 0351	0676 0352	0726 0353	0540 0354	0727 0355	0727 0356	0727 0357	0727 0358	0656 0359	0253 0360	0725 0361	0690 0362	0469 0363	0726 0364	0435 0365	0726 0366	0725 0367	0725 0368	0725 0369	0725 0370	0725 0371	0568 0372	0635 0373	0725 0374	0726 0375	females (cont...)
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst				4																						
Hydronephrosis														3												
Nephropathy	1		1			1	1				2	2	1	1	1		1	1		1	1	1	1		1	
Cortex, Inflammation, Chronic Active																										
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST	0584	0523	0726	0582	0549	0601	0704	0726	0676	0726	0609	0727	0727	0692	0621	0727	0727	0727	0727	0700	0593	0726	0575	0362	0681	
ANIMAL ID	0037 6	0037 7	0037 8	0037 9	0038 0	0038 1	0038 2	0038 3	0038 4	0038 5	0038 6	0038 7	0038 8	0038 9	0039 0	0039 1	0039 2	0039 3	0039 4	0039 5	0039 6	0039 7	0039 8	0039 9	0040 0	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Basophilic Focus																							X			
Clear Cell Focus												X														
Fatty Change	2														1											
Hematopoietic Cell Proliferation																										
Hepatodiaphragmatic Nodule																							X			
Inflammation																								1		
Hepatocyte, Vacuolization Cytoplasmic																										
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy						1																				
Acinus, Hyperplasia																1										
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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X .. Lesion present
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M .. Missing tissue
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1) Minimal 3) Moderate
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HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST	0584	0523	0726	0582	0549	0601	0704	0726	0676	0726	0609	0727	0727	0692	0621	0727	0727	0727	0727	0700	0593	0726	0575	0362	0681	
ANIMAL ID	00376	00377	00378	00379	00380	00381	00382	00383	00384	00385	00386	00387	00388	00389	00390	00391	00392	00393	00394	00395	00396	00397	00398	00399	00400	**females (cont...)**
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Edema																										
Ulcer	1																									
Epithelium, Hyperplasia	2				1	2									1											
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Erosion																				2						
Tooth												+														
Necrosis												3														
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																	2									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy																	1					1				
Endocardium, Fibrosis																										
Myocardium, Inflammation, Chronic Active																								1		
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic																										
Hyperplasia			1																							
Necrosis																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia												1							2							

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS FEMALE
Control (38ppm)

DAY ON TEST / ANIMAL ID	0584 0376	0523 0377	0726 0378	0582 0379	0549 0380	0601 0381	0704 0382	0726 0383	0676 0384	0726 0385	0609 0386	0727 0387	0727 0388	0692 0389	0621 0390	0727 0391	0727 0392	0727 0393	0727 0394	0700 0395	0593 0396	0726 0397	0575 0398	0362 0399	0681 0400	females (cont...)
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	M	M	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																										
Pars Distalis, Hyperplasia						1						2	3				2		1	1	1	2			1	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia	2							2	2		4			1							1		1		2	
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy			3	3		4	3	2	3	2	3		2	1	2		2	2	2			3			1	
Cyst				X	X			X	X	X		X	X							X						
Inflammation																								3		
Granulosa Cell, Hyperplasia																										
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Metaplasia, Squamous			1	3		2	1			1	2		2		1		2	1			1	1			1	
Pigmentation, Hemosiderin																					1					
Thrombosis																								4		

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0584	0523	0726	0582	0549	0601	0704	0726	0676	0726	0609	0727	0727	0692	0621	0727	0727	0727	0727	0700	0593	0726	0575	0362	0681	
HARLAN SPRAGUE DAWLEY RATS FEMALE **Control (38ppm)** ANIMAL ID	00376	00377	00378	00379	00380	00381	00382	00383	00384	00385	00386	00387	00388	00389	00390	00391	00392	00393	00394	00395	00396	00397	00398	00399	00400	**females (cont...)**
Cervix, Hypertrophy																										
Endometrium, Hyperplasia, Cystic	1																						1	4		
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia				2		2				2					2			1			1		2			
Lymph Node			+																							
Mediastinal, Hemorrhage			3																							
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia									3									2	2			2				
Infiltration Cellular, Plasma Cell		3		2		1					3	2									1		3			
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																		4								
Infiltration Cellular, Histiocyte																										
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	1	2	2	2		2	1			3				1	2		1						1			
Hemorrhage																										
Pigmentation, Hemosiderin	3		2	1	1		3				3	1	3	2	2	3	3	2	2	2		3	2		2	
Lymphoid Follicle, Atrophy																								2		
Lymphoid Follicle, Hyperplasia				1		1				1		2											2			
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	
Atrophy	1	1	2		4	2	2	1		1		2	2	1			2			2		2		4	1	

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0584	0523	0726	0582	0549	0601	0704	0726	0676	0726	0609	0727	0727	0692	0621	0727	0727	0727	0727	0700	0593	0726	0575	0362	0681	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
Control (38ppm) ANIMAL ID	0037 6	0037 7	0037 8	0037 9	0038 0	0038 1	0038 2	0038 3	0038 4	0038 5	0038 6	0038 7	0038 8	0038 9	0039 0	0039 1	0039 2	0039 3	0039 4	0039 5	0039 6	0039 7	0039 8	0039 9	0040 0	**females (cont...)**
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia							4																			
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage					2																					
Cerebrum, Gliosis																										
Glial Cell, Hyperplasia																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	3	2	2			1	2	2	2	1		3	3	2			2	2	2		2	2	3	1		
Alveolar Epithelium, Hyperplasia													4													
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation											2															
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										

DAY ON TEST	0584	0523	0726	0582	0549	0601	0704	0726	0676	0726	0609	0727	0727	0692	0621	0727	0727	0727	0727	0700	0593	0726	0575	0362	0681	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
Control (38ppm) ANIMAL ID	00376	00377	00378	00379	00380	00381	00382	00383	00384	00385	00386	00387	00388	00389	00390	00391	00392	00393	00394	00395	00396	00397	00398	00399	00400	**females (cont...)**
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																2										
Hydronephrosis																										
Nephropathy	1			1			2		1	1	1					1	2			1		1	1			
Cortex, Inflammation, Chronic Active																								1		
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
Control (38ppm)											
ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Intestine Large, Colon											**50**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**50**
Intestine Small, Ileum											**50**
Intestine Small, Jejunum											**50**
Liver											**50**
Basophilic Focus											**1**
Clear Cell Focus											**2**
Fatty Change											**6 1.2**
Hematopoietic Cell Proliferation											**1 2.0**
Hepatodiaphragmatic Nodule											**1**
Inflammation											**1 1.0**
Hepatocyte, Vacuolization Cytoplasmic											**1 3.0**
Pancreas											**50**
Acinus, Atrophy											**2 1.5**
Acinus, Hyperplasia											**2 1.0**
Salivary Glands											**50**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS FEMALE

Control (38ppm)

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
Stomach, Forestomach											**50**
Edema											**1 2.0**
Ulcer											**1 1.0**
Epithelium, Hyperplasia											**5 1.6**
Stomach, Glandular											**50**
Erosion											**1 2.0**
Tooth											**1**
Necrosis											**1 3.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**1 2.0**
Heart											**50**
Cardiomyopathy											**7 1.4**
Endocardium, Fibrosis											**1 1.0**
Myocardium, Inflammation, Chronic Active											**1 1.0**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**3 1.3**
Hyperplasia											**6 1.0**
Necrosis											**1 1.0**
Adrenal Medulla											**50**
Hyperplasia											**6 1.3**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
Control (38ppm) ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
Islets, Pancreatic											**50**
Parathyroid Gland											**42**
Pituitary Gland											**50**
Angiectasis											**1 2.0**
Pars Distalis, Hyperplasia											**15 1.8**
Thyroid Gland											**50**
C-cell, Hyperplasia											**18 1.7**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Clitoral Gland											**49**
Ovary											**50**
Atrophy											**31 2.4**
Cyst											**12**
Inflammation											**1 3.0**
Granulosa Cell, Hyperplasia											**1 2.0**
Uterus											**50**
Inflammation											**1 2.0**
Metaplasia, Squamous											**21 1.5**
Pigmentation, Hemosiderin											**2 1.5**
Thrombosis											**1 4.0**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
Control (38ppm) ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
Cervix, Hypertrophy											**1 3.0**
Endometrium, Hyperplasia, Cystic											**9 2.1**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 2.0**
Hyperplasia											**14 1.9**
Lymph Node											**1**
Mediastinal, Hemorrhage											**1 3.0**
Lymph Node, Mandibular											**50**
Hyperplasia											**8 2.1**
Infiltration Cellular, Plasma Cell											**15 2.3**
Lymph Node, Mesenteric											**50**
Hyperplasia											**1 4.0**
Infiltration Cellular, Histiocyte											**1 2.0**
Spleen											**50**
Hematopoietic Cell Proliferation											**25 1.8**
Hemorrhage											**1 1.0**
Pigmentation, Hemosiderin											**39 2.2**
Lymphoid Follicle, Atrophy											**1 2.0**
Lymphoid Follicle, Hyperplasia											**11 1.2**
Thymus											**48**
Atrophy											**35 1.9**

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I .. Insufficient tissue
M .. Missing tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
Control (38ppm) ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
INTEGUMENTARY SYSTEM											
Mammary Gland											**50**
Hyperplasia											**2 4.0**
Skin											**50**
MUSCULOSKELETAL SYSTEM											
Bone											**50**
NERVOUS SYSTEM											
Brain											**50**
Hemorrhage											**1 2.0**
Cerebrum, Gliosis											**1 2.0**
Glial Cell, Hyperplasia											**1 1.0**
RESPIRATORY SYSTEM											
Lung											**50**
Infiltration Cellular, Histiocyte											**37 2.1**
Alveolar Epithelium, Hyperplasia											**1 4.0**
Nose											**50**
Inflammation											**1 2.0**
Trachea											**50**
SPECIAL SENSES SYSTEM											

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0291	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
Control (38ppm) ANIMAL ID	00571	00572	00573	00574	00575	00576	00577	00578	00579	00580	*** TOTALS**
Eye											**50**
Harderian Gland											**50**
URINARY SYSTEM											
Kidney											**50**
Cyst											**2 3.0**
Hydronephrosis											**1 3.0**
Nephropathy											**27 1.1**
Cortex, Inflammation, Chronic Active											**1 1.0**
Urinary Bladder											**50**

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DAY ON TEST	045	060	051	072	072	072	059	064	072	072	051	072	072	072	072	070	051	069	072	072	032	035	072	072	072	
HARLAN SPRAGUE DAWLEY RATS FEMALE	9	1	3	6	7	7	9	8	7	7	8	7	5	5	5	0	9	0	5	5	3	0	6	6	5	
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																										
Clear Cell Focus																			X							
Developmental Malformation																										
Eosinophilic Focus									X																	
Fatty Change				1											1										1	
Hematopoietic Cell Proliferation				2							2															
Mixed Cell Focus																							X			
Bile Duct, Cyst																										
Bile Duct, Hyperplasia																										
Hepatocyte, Inclusion Body Intracytoplasmic									1																	
Hepatocyte, Necrosis							1																			
Hepatocyte, Vacuolization Cytoplasmic																										

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1-4 .. Lesion qualified as:
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DAY ON TEST	0459	0601	0513	0726	0727	0727	0599	0648	0727	0727	0518	0727	0725	0725	0725	0700	0519	0690	0725	0725	0323	0350	0726	0726	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275	**females (cont...)**
Pancreas	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Thrombosis	4																									
Acinus, Atrophy																						1				
Acinus, Hyperplasia																										
Duct, Hyperplasia, Cystic																										
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer			3																							
Epithelium, Hyperplasia	2		2														3									
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tooth				+																						
Malformation				2																						
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																			1							
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy				1	1				1	1				1						2						
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic																										
Hyperplasia					2					2																

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+ .. Tissue examined microscopically
X .. Lesion present
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M .. Missing tissue
A .. Autolysis precludes evaluation
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0459	0601	0513	0726	0727	0727	0599	0648	0727	0727	0518	0727	0725	0725	0725	0700	0519	0690	0725	0725	0323	0350	0726	0726	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275	**females (cont...)**
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia								3		1			1													
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	+	+	+	+	+	+	M	M	+	+	+	+	+	M	+	+	+	+	M	+	M	+	+	+	
Hyperplasia																							1			
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Angiectasis																										
Pars Distalis, Hyperplasia						2			2	4					4			3					4		4	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia		1		2		2			1					1	3	2		1					1			
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2			2	4		3		3	3		3	2		3	1		4	4						4	
Cyst				X								X					X						X			
Interstitial Cell, Hyperplasia																			2			2				
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																									3	

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M .. Missing tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0459	0601	0513	0726	0727	0727	0599	0648	0727	0727	0518	0727	0725	0725	0725	0700	0519	0690	0725	0725	0323	0350	0726	0726	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275	**females (cont...)**
Inflammation											2															
Metaplasia, Squamous		2								1		1	1			2	2					1	3	1	1	
Endometrium, Hyperplasia, Cystic				4								2				1										
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		2	1	2											2	1	2					1				
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy							2								2											
Hyperplasia				2								2							3					3		
Infiltration Cellular, Plasma Cell		2	2	3	2				2		2		2	2			2								2	
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	
Atrophy														2												
Hyperplasia																					3					
Infiltration Cellular, Histiocyte												3														
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation		2	4	2	1	1		2	1		4				1	3	2	2	2		2	3	1			
Inflammation											2															
Pigmentation, Hemosiderin		1		1	3	2		2	3	3		3	3	2	2	1			3		1	1	3	2	2	
Lymphoid Follicle, Atrophy																										
Lymphoid Follicle, Hyperplasia		1		2				1													1	2				
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2		3	1	2	3	4		3	2			3	1		1		2					2	2	2	
Epithelial Cell, Hyperplasia								4																		

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
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DAY ON TEST	0459	0601	0513	0726	0727	0727	0599	0648	0727	0727	0518	0727	0725	0725	0725	0700	0519	0690	0725	0725	0323	0350	0726	0726	0725
HARLAN SPRAGUE DAWLEY RATS FEMALE																									
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275
females (cont...)																									
INTEGUMENTARY SYSTEM																									
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia						4								1										3	
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																								4	
MUSCULOSKELETAL SYSTEM																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
NERVOUS SYSTEM																									
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemorrhage	2																								
RESPIRATORY SYSTEM																									
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Infiltration Cellular, Histiocyte			2	2	2	3	3	3		3	2		2	1	3	1	2	2	2	1		2	3		3
Inflammation																									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation				2	1																				
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
SPECIAL SENSES SYSTEM																									
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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DAY ON TEST	0459	0601	0513	0726	0727	0727	0599	0648	0727	0727	0518	0727	0725	0725	0725	0700	0519	0690	0725	0725	0323	0350	0726	0726	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00251	00252	00253	00254	00255	00256	00257	00258	00259	00260	00261	00262	00263	00264	00265	00266	00267	00268	00269	00270	00271	00272	00273	00274	00275	**females (cont...)**
Cataract									1																	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infarct, Chronic																										
Mineralization	1																									
Nephropathy	1			1	3	1		1	1	1	1	1	2	2					2	2		1	1	1	1	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

DAY ON TEST	0725	0649	0725	0729	0729	0729	0714	0633	0726	0726	0726	0728	0728	0728	0728	0725	0725	0725	0659	0725	0701	0435	0726	0726	0725	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																											
3.5ppm SevZnDef ANIMAL ID	00276	00277	00278	00279	00280	00281	00282	00283	00284	00285	00286	00287	00288	00289	00290	00291	00292	00293	00294	00295	00296	00297	00298	00299	00300	**females (cont...)**	

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis				1																2							
Clear Cell Focus																									X		
Developmental Malformation										X																	
Eosinophilic Focus																											
Fatty Change																1											
Hematopoietic Cell Proliferation																											
Mixed Cell Focus																											
Bile Duct, Cyst																						4					
Bile Duct, Hyperplasia						1											2										
Hepatocyte, Inclusion Body Intracytoplasmic																											
Hepatocyte, Necrosis																											
Hepatocyte, Vacuolization Cytoplasmic																									2		

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DAY ON TEST / ANIMAL ID	0725 0026	0649 0027	0725 0027	0729 0027	0729 0028	0729 0028	0714 0028	0633 0028	0726 0028	0726 0028	0726 0028	0728 0028	0728 0028	0728 0028	0728 0029	0725 0029	0725 0029	0659 0029	0725 0029	0701 0029	0435 0029	0726 0029	0726 0029	0725 0029	0659 0030	females (cont...)
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef																										
Pancreas	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Thrombosis																										
Acinus, Atrophy	1			1																		1				
Acinus, Hyperplasia				1																						
Duct, Hyperplasia, Cystic										3																
Salivary Glands	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer																										
Epithelium, Hyperplasia						3	1					2			1	1										
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tooth																										
Malformation																										
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy			1		1					1													1			
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic			2						2							2								2		
Hyperplasia													2			2							1			

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 3.5ppm SevZnDef / ANIMAL ID	0725 00276	0649 00277	0725 00278	0729 00279	0729 00280	0729 00281	0714 00282	0633 00283	0726 00284	0726 00285	0726 00286	0728 00287	0728 00288	0728 00289	0728 00290	0725 00291	0725 00292	0659 00293	0725 00294	0701 00295	0435 00296	0726 00297	0726 00298	0725 00299	0659 00300	females (cont...)
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia										1																
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	
Hyperplasia																										
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Angiectasis		2																								
Pars Distalis, Hyperplasia		2	3						4		3		4	1								2		2		
Thyroid Gland	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia				1	1				1							1							2			
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		1	3	4	4		4		2	3	3	3	2	3	4	3	4					2	3			
Cyst											X					X	X	X								
Interstitial Cell, Hyperplasia																										
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																										

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DAY ON TEST	0725	0649	0725	0729	0729	0729	0714	0633	0726	0726	0726	0728	0728	0728	0728	0725	0725	0659	0725	0701	0435	0726	0726	0725	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00276	00277	00278	00279	00280	00281	00282	00283	00284	00285	00286	00287	00288	00289	00290	00291	00292	00293	00294	00295	00296	00297	00298	00299	00300	**females (cont...)**
Inflammation																										
Metaplasia, Squamous			1		1				1	3	1		2	4	2						2					
Endometrium, Hyperplasia, Cystic	2		1						2		2	1	1			2	2	3					1			
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia						1												1							1	
Lymph Node, Mandibular	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia					2					2	2			3			2	2		2		2				
Infiltration Cellular, Plasma Cell		3			2					2	2		2					2				2	2			
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia																										
Infiltration Cellular, Histiocyte												2												2		
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation			1	1		2				2		1	1			2	1	2			2	2	2			
Inflammation																										
Pigmentation, Hemosiderin	2	3	1	2	3	1		3	2		3	3	3	3	3	2	3		1		1	2		2	2	
Lymphoid Follicle, Atrophy		2						1																		
Lymphoid Follicle, Hyperplasia																		2		2	2				2	
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	4			2		3	1	4	1		2	1	2	1	3	1	2		4	2		2	1	1	1	
Epithelial Cell, Hyperplasia																										

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DAY ON TEST	0725	0649	0725	0729	0729	0729	0714	0633	0726	0726	0726	0728	0728	0728	0728	0725	0725	0659	0725	0701	0435	0726	0726	0725	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00276	00277	00278	00279	00280	00281	00282	00283	00284	00285	00286	00287	00288	00289	00290	00291	00292	00293	00294	00295	00296	00297	00298	00299	00300	**females (cont...)**
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		2	4																							
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	1		3	3	2	2			2	3		3	2	2	1	3	3		2	2	2	1		3	3	
Inflammation				2																						
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0725	0649	0725	0729	0729	0729	0714	0633	0726	0726	0726	0728	0728	0728	0728	0725	0725	0659	0725	0701	0435	0726	0726	0725	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
3.5ppm SevZnDef ANIMAL ID	00276	00277	00278	00279	00280	00281	00282	00283	00284	00285	00286	00287	00288	00289	00290	00291	00292	00293	00294	00295	00296	00297	00298	00299	00300	**females (cont...)**
Cataract																										
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infarct, Chronic						1																				
Mineralization																										
Nephropathy	1				1					1		1		1	1	1	1			1	1	2				
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
3.5ppm SevZnDef											
ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**49**
Intestine Large, Cecum											**49**
Intestine Large, Colon											**49**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**49**
Intestine Small, Ileum											**49**
Intestine Small, Jejunum											**49**
Liver											**50**
Angiectasis											**2 1.5**
Clear Cell Focus											**2**
Developmental Malformation											**1**
Eosinophilic Focus											**1**
Fatty Change											**4 1.0**
Hematopoietic Cell Proliferation											**2 2.0**
Mixed Cell Focus											**1**
Bile Duct, Cyst											**1 4.0**
Bile Duct, Hyperplasia											**2 1.5**
Hepatocyte, Inclusion Body Intracytoplasmic											**1 1.0**
Hepatocyte, Necrosis											**1 1.0**
Hepatocyte, Vacuolization Cytoplasmic											**1 2.0**

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M .. Missing tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
3.5ppm SevZnDef											
ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**
Pancreas											**48**
Thrombosis											**1 4.0**
Acinus, Atrophy											**4 1.0**
Acinus, Hyperplasia											**1 1.0**
Duct, Hyperplasia, Cystic											**1 3.0**
Salivary Glands											**49**
Stomach, Forestomach											**50**
Ulcer											**1 3.0**
Epithelium, Hyperplasia											**8 1.9**
Stomach, Glandular											**50**
Tooth											**1**
Malformation											**1 2.0**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**1 1.0**
Heart											**50**
Cardiomyopathy											**10 1.1**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**4 2.0**
Hyperplasia											**5 1.8**

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370		
HARLAN SPRAGUE DAWLEY RATS FEMALE												
3.5ppm SevZnDef												
ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**	
Adrenal Medulla											**50**	
Hyperplasia											**4**	**1.5**
Islets, Pancreatic											**50**	
Parathyroid Gland											**43**	
Hyperplasia											**1**	**1.0**
Pituitary Gland											**50**	
Pars Distalis, Angiectasis											**1**	**2.0**
Pars Distalis, Hyperplasia											**15**	**2.9**
Thyroid Gland											**49**	
C-cell, Hyperplasia											**14**	**1.4**
GENERAL BODY SYSTEM												
NONE												
GENITAL SYSTEM												
Clitoral Gland											**50**	
Ovary											**50**	
Atrophy											**29**	**3.0**
Cyst											**8**	
Interstitial Cell, Hyperplasia											**2**	**2.0**
Uterus											**50**	
Cyst											**1**	**3.0**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
3.5ppm SevZnDef											
ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**
Inflammation											**1 2.0**
Metaplasia, Squamous											**19 1.7**
Endometrium, Hyperplasia, Cystic											**13 1.8**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**49**
Hyperplasia											**10 1.4**
Lymph Node, Mandibular											**49**
Atrophy											**2 2.0**
Hyperplasia											**12 2.3**
Infiltration Cellular, Plasma Cell											**18 2.1**
Lymph Node, Mesenteric											**49**
Atrophy											**1 2.0**
Hyperplasia											**1 3.0**
Infiltration Cellular, Histiocyte											**3 2.3**
Spleen											**50**
Hematopoietic Cell Proliferation											**28 1.9**
Inflammation											**1 2.0**
Pigmentation, Hemosiderin											**38 2.2**
Lymphoid Follicle, Atrophy											**2 1.5**
Lymphoid Follicle, Hyperplasia											**9 1.7**
Thymus											**50**
Atrophy											**34 2.1**
Epithelial Cell, Hyperplasia											**1 4.0**

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1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	037 0	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
3.5ppm SevZnDef ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**
INTEGUMENTARY SYSTEM											
Mammary Gland											**50**
Hyperplasia											**5 2.8**
Skin											**50**
Inflammation											**1 4.0**
MUSCULOSKELETAL SYSTEM											
Bone											**50**
NERVOUS SYSTEM											
Brain											**50**
Hemorrhage											**1 2.0**
RESPIRATORY SYSTEM											
Lung											**50**
Infiltration Cellular, Histiocyte											**38 2.2**
Inflammation											**1 2.0**
Nose											**50**
Inflammation											**2 1.5**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**50**

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
3.5ppm SevZnDef											
ANIMAL ID	00551	00552	00553	00554	00555	00556	00557	00558	00559	00560	*** TOTALS**
Cataract											**1 1.0**
Harderian Gland											**50**
URINARY SYSTEM											
Kidney											**50**
Infarct, Chronic											**1 1.0**
Mineralization											**1 1.0**
Nephropathy											**28 1.3**
Urinary Bladder											**50**

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1-4 .. Lesion qualified as:
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HARLAN SPRAGUE DAWLEY RATS FEMALE
7ppm ZnDef

DAY ON TEST	072	072	072	072	064	072	072	072	072	072	072	072	072	072	072	072	072	072	072	063	064	069	067	072	058	
ANIMAL ID	00301	00302	00303	00304	00305	00306	00307	00308	00309	00310	00311	00312	00313	00314	00315	00316	00317	00318	00319	00320	00321	00322	00323	00324	00325	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																										
Clear Cell Focus			X																							
Eosinophilic Focus							X																			
Fatty Change			2	1						1			1			1		1								
Mixed Cell Focus																										
Hepatocyte, Necrosis					1																					
Pancreas	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy				1																						
Acinus, Basophilic Focus									X																	
Acinus, Hyperplasia										1																
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	07266	07266	07266	07266	06444	07277	07277	07277	07299	07299	07299	07266	07266	07266	07266	07266	07277	07277	07277	06355	06444	06977	06766	07277	05822	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
7ppm ZnDef ANIMAL ID	00301	00302	00303	00304	00305	00306	00307	00308	00309	00310	00311	00312	00313	00314	00315	00316	00317	00318	00319	00320	00321	00322	00323	00324	00325	**females (cont...)**
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia					2										2							2			2	
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy			1												1											
Endocardium, Hyperplasia																								2		
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic																										
Hyperplasia				2				2			2				2											
Thrombosis																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia							1										1						1			
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Parathyroid Gland	M	M	+	+	M	+	+	+	+	+	+	+	+	M	M	+	+	M	+	+	+	+	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia	3	2	2			1			3				3				1		4	4				2	2	

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DAY ON TEST	07 26	07 26	07 26	07 26	06 44	07 27	07 27	07 27	07 29	07 29	07 29	07 29	07 26	07 26	07 26	07 26	07 27	07 27	07 27	06 35	06 44	06 97	06 76	07 27	05 82	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
7ppm ZnDef ANIMAL ID	00 301	00 302	00 303	00 304	00 305	00 306	00 307	00 308	00 309	00 310	00 311	00 312	00 313	00 314	00 315	00 316	00 317	00 318	00 319	00 320	00 321	00 322	00 323	00 324	00 325	**females (cont...)**
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia				4									3		2						4					
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																										
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	4		2	4		3	2	3	2			3			3	4	3		4	3	2		2	2		
Cyst																	X					X				
Bilateral, Cyst													X													
Granulosa Cell, Hyperplasia																										
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Metaplasia, Squamous	2		1			4	1						4				2		4	2	1					
Polyp, Inflammatory									4																	
Endometrium, Hyperplasia, Cystic	2			1				2															3			
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy			2																							
Hyperplasia						1			2		2										2				3	
Lymph Node, Mandibular	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	07 26	07 26	07 26	07 26	06 44	07 27	07 27	07 27	07 29	07 29	07 29	07 29	07 26	07 26	07 26	07 26	07 27	07 27	07 27	06 35	06 44	06 97	06 76	07 27	05 82	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
7ppm ZnDef ANIMAL ID	00 301	00 302	00 303	00 304	00 305	00 306	00 307	00 308	00 309	00 310	00 311	00 312	00 313	00 314	00 315	00 316	00 317	00 318	00 319	00 320	00 321	00 322	00 323	00 324	00 325	**females (cont...)**
Atrophy																										
Hyperplasia		3															2			2	2					
Infiltration Cellular, Plasma Cell								3					2							3	2		2		3	
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Infiltration Cellular, Histiocyte																	2									
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation		2	3	1		2		2	2	1	3		1			2				2	2		1		3	
Pigmentation, Hemosiderin	1	2	2	2			3	1	1	2	1		1	2	2	3	3	1	2	1	1	4	2	2		
Lymphoid Follicle, Atrophy																										
Lymphoid Follicle, Hyperplasia																	2			1	2					
Thymus	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy				1			1						2	4	4		1	1	2				2	2		
Hyperplasia								4																		
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst																										
Hyperplasia						1																				
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	072	072	072	072	064	072	072	072	072	072	072	072	072	072	072	072	072	072	072	063	064	069	067	072	058	
HARLAN SPRAGUE DAWLEY RATS FEMALE	6	6	6	6	4	7	7	7	9	9	9	9	6	6	6	6	7	7	7	5	4	7	6	7	2	
7ppm ZnDef ANIMAL ID	00301	00302	00303	00304	00305	00306	00307	00308	00309	00310	00311	00312	00313	00314	00315	00316	00317	00318	00319	00320	00321	00322	00323	00324	00325	**females (cont...)**
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	2	3		3	3	2	2	2	3	1	2	2	3	3	2	2	3		1	2	3	3	1	3	3	
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Respiratory Epithelium, Hyperplasia				1																						
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy		1			1					1					1	2	1	1	1			2	1			
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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HARLAN SPRAGUE DAWLEY RATS FEMALE
7ppm ZnDef

DAY ON TEST	07226	07266	06155	07277	07277	07277	07277	06766	07255	07255	07255	07266	07266	07266	06766	04447	04833	07277	06663	06900	07255	07000	05722	04633	07288	
ANIMAL ID	00326	00327	00328	00329	00330	00331	00332	00333	00334	00335	00336	00337	00338	00339	00340	00341	00342	00343	00344	00345	00346	00347	00348	00349	00350	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis								2			2														2	
Clear Cell Focus									X			X	X	X				X			X					
Eosinophilic Focus								X										X								
Fatty Change								1								2	3			1			1			
Mixed Cell Focus		X																							X	
Hepatocyte, Necrosis															1											
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy												1														
Acinus, Basophilic Focus										X																
Acinus, Hyperplasia										1			1	2											1	
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 7ppm ZnDef / ANIMAL ID	0726 0003 26	0726 0003 27	0615 0003 28	0727 0003 29	0727 0003 30	0727 0003 31	0727 0003 32	0676 0003 33	0725 0003 34	0725 0003 35	0725 0003 36	0726 0003 37	0726 0003 38	0726 0003 39	0676 0004 40	0447 0003 41	0483 0003 42	0727 0003 43	0663 0003 44	0690 0003 45	0725 0003 46	0700 0003 47	0572 0003 48	0463 0003 49	0728 0003 50	**females (cont...)**
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Epithelium, Hyperplasia																										
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy														1							1					
Endocardium, Hyperplasia																										
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic			2																							
Hyperplasia																				2						
Thrombosis									2																	
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia									1																	
Parathyroid Gland	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	M	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia		2		4	4				2	4	3	1	4		1			2							1	

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / ANIMAL ID	0726 0036	0726 0037	0615 0038	0727 0039	0727 0030	0727 0031	0727 0032	0676 0033	0725 0034	0725 0035	0725 0036	0726 0037	0726 0038	0726 0039	0676 0040	0447 0041	0483 0042	0727 0043	0663 0044	0690 0045	0725 0046	0700 0047	0572 0048	0463 0049	0728 0050
HARLAN SPRAGUE DAWLEY RATS FEMALE **7ppm ZnDef**																									**females (cont...)**
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
C-cell, Hyperplasia			4							3							2				2	3			
GENERAL BODY SYSTEM																									
NONE																									
GENITAL SYSTEM																									
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cyst																				4					
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy		3	2		4	3	3	3		4	4	2			3			4	1			4	2		
Cyst	X												X												X
Bilateral, Cyst				X																					
Granulosa Cell, Hyperplasia	4																								
Uterus	+	+	A	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Metaplasia, Squamous		1		3	2	1					2	2					1	1							4
Polyp, Inflammatory																									
Endometrium, Hyperplasia, Cystic												1													
HEMATOPOIETIC SYSTEM																									
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Atrophy																									
Hyperplasia					1										2		1							2	
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 7ppm ZnDef / ANIMAL ID	0726 0032 6	0726 0032 7	0615 0032 8	0727 0032 9	0727 0033 0	0727 0033 1	0727 0033 2	0676 0033 3	0725 0033 4	0725 0033 5	0725 0033 6	0726 0033 7	0726 0033 8	0726 0033 9	0676 0034 0	0447 0034 1	0483 0034 2	0727 0034 3	0663 0034 4	0690 0034 5	0725 0034 6	0700 0034 7	0572 0034 8	0463 0034 9	0728 0035 0	females (cont...)
Atrophy			2																							
Hyperplasia										2								2			2			2		
Infiltration Cellular, Plasma Cell																2	2									
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy			2																							
Infiltration Cellular, Histiocyte																									2	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	2	1		2	1	1			3	1	2			2	3	2	1			2	1	2		1	1	
Pigmentation, Hemosiderin	1	2		2	1	2	1	1		1	1	3	2		1	1	1	1	2	1	3	2	4	1	3	
Lymphoid Follicle, Atrophy																							3			
Lymphoid Follicle, Hyperplasia	1															1		1						2		
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	
Atrophy	1	1	3	2	1		1	2	3	2		2	2	2		3	3	3		3	3	2	1	2	2	
Hyperplasia																										
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst			4																							
Hyperplasia													3													
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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M .. Missing tissue
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1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 7ppm ZnDef / ANIMAL ID	072 26	072 26	061 5	072 27	072 27	072 27	072 27	067 6	072 5	072 5	072 5	072 6	072 6	072 6	067 6	044 7	048 3	072 7	066 3	069 0	072 5	070 0	057 2	046 3	072 8	
	00326	00327	00328	00329	00330	00331	00332	00333	00334	00335	00336	00337	00338	00339	00340	00341	00342	00343	00344	00345	00346	00347	00348	00349	00350	**females (cont...)**
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte	2	3	3	2	1	2	1	3	2				2	1	2	2	1	2				1		2		
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Respiratory Epithelium, Hyperplasia																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy		1	1			1		1					1	1	1		1					1	1		1	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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I .. Insufficient tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0202	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
7ppm ZnDef											
ANIMAL ID	00561	00562	00563	00564	00565	00566	00567	00568	00569	00570	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**50**
Intestine Large, Colon											**50**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**50**
Intestine Small, Ileum											**50**
Intestine Small, Jejunum											**50**
Liver											**50**
Angiectasis											**3 2.0**
Clear Cell Focus											**7**
Eosinophilic Focus											**3**
Fatty Change											**11 1.4**
Mixed Cell Focus											**2**
Hepatocyte, Necrosis											**2 1.0**
Pancreas											**49**
Acinus, Atrophy											**2 1.0**
Acinus, Basophilic Focus											**2**
Acinus, Hyperplasia											**5 1.2**
Salivary Glands											**50**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0202	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
7ppm ZnDef											
ANIMAL ID	00561	00562	00563	00564	00565	00566	00567	00568	00569	00570	*** TOTALS**
Stomach, Forestomach											**50**
Epithelium, Hyperplasia											**4 2.0**
Stomach, Glandular											**50**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Heart											**50**
Cardiomyopathy											**4 1.0**
Endocardium, Hyperplasia											**1 2.0**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**1 2.0**
Hyperplasia											**5 2.0**
Thrombosis											**1 2.0**
Adrenal Medulla											**50**
Hyperplasia											**3 1.0**
Islets, Pancreatic											**50**
Hyperplasia											**1 1.0**
Parathyroid Gland											**41**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**22 2.5**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0202	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
7ppm ZnDef											
ANIMAL ID	00561	00562	00563	00564	00565	00566	00567	00568	00569	00570	*** TOTALS**
Thyroid Gland											**50**
C-cell, Hyperplasia											**9 3.0**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Clitoral Gland											**50**
Cyst											**1 4.0**
Ovary											**50**
Atrophy											**30 2.9**
Cyst											**5**
Bilateral, Cyst											**2**
Granulosa Cell, Hyperplasia											**1 4.0**
Uterus											**49**
Metaplasia, Squamous											**18 2.1**
Polyp, Inflammatory											**1 4.0**
Endometrium, Hyperplasia, Cystic											**5 1.8**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**1 2.0**
Hyperplasia											**9 1.8**
Lymph Node, Mandibular											**49**

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+ .. Tissue examined microscopically
X .. Lesion present
I .. Insufficient tissue
M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

HARLAN SPRAGUE DAWLEY RATS FEMALE 7ppm ZnDef	DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0202	0370	0370	* TOTALS	
	ANIMAL ID	00561	00562	00563	00564	00565	00566	00567	00568	00569	00570		
Atrophy												**1**	**2.0**
Hyperplasia												**8**	**2.1**
Infiltration Cellular, Plasma Cell												**8**	**2.4**
Lymph Node, Mesenteric												**50**	
Atrophy												**1**	**2.0**
Infiltration Cellular, Histiocyte												**2**	**2.0**
Spleen												**50**	
Hematopoietic Cell Proliferation												**31**	**1.8**
Pigmentation, Hemosiderin												**43**	**1.8**
Lymphoid Follicle, Atrophy												**1**	**3.0**
Lymphoid Follicle, Hyperplasia												**7**	**1.4**
Thymus												**48**	
Atrophy												**31**	**2.1**
Hyperplasia												**1**	**4.0**
INTEGUMENTARY SYSTEM													
Mammary Gland												**50**	
Cyst												**1**	**4.0**
Hyperplasia												**2**	**2.0**
Skin												**50**	
MUSCULOSKELETAL SYSTEM													
Bone												**50**	

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M .. Missing tissue
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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	037	037	022	037	037		
HARLAN SPRAGUE DAWLEY RATS FEMALE												
7ppm ZnDef												
ANIMAL ID	00561	00562	00563	00564	00565	00566	00567	00568	00569	00570		*** TOTALS**
NERVOUS SYSTEM												
Brain												**50**
RESPIRATORY SYSTEM												
Lung												**50**
Infiltration Cellular, Histiocyte												**40 2.2**
Nose												**50**
Respiratory Epithelium, Hyperplasia												**1 1.0**
Trachea												**50**
SPECIAL SENSES SYSTEM												
Eye												**50**
Harderian Gland												**50**
URINARY SYSTEM												
Kidney												**50**
Nephropathy												**21 1.1**
Urinary Bladder												**50**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	072	072	069	056	060	072	065	072	053	072	068	057	044	072	048	072	072	072	072	017	072	072	072	072	065
HARLAN SPRAGUE DAWLEY RATS FEMALE	5	9	2	5	1	6	9	6	7	5	7	5	9	6	1	6	7	7	7	9	7	7	7	7	9
250ppmModZnExc ANIMAL ID	00401	00402	00403	00404	00405	00406	00407	00408	00409	00410	00411	00412	00413	00414	00415	00416	00417	00418	00419	00420	00421	00422	00423	00424	00425

females (cont...)

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Parasite Metazoan																			X						
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Angiectasis																									
Clear Cell Focus									X															X	
Eosinophilic Focus											X														
Fatty Change										2															2
Mixed Cell Focus			X				X				X														
Hepatocyte, Hypertrophy																									
Hepatocyte, Vacuolization Cytoplasmic															2										
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Acinus, Atrophy						1						2						1							
Salivary Glands	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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2) Mild 4) Marked

DAY ON TEST	0729	0729	0692	0565	0601	0726	0659	0726	0537	0725	0687	0575	0449	0726	0481	0726	0727	0727	0727	0179	0727	0727	0727	0727	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
250ppmModZnExc ANIMAL ID	0040 1	0040 2	0040 3	0040 4	0040 5	0040 6	0040 7	0040 8	0040 9	0041 0	0041 1	0041 2	0041 3	0041 4	0041 5	0041 6	0041 7	0041 8	0041 9	0042 0	0042 1	0042 2	0042 3	0042 4	0042 5	**females (cont...)**
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation															2											
Ulcer																										
Epithelium, Hyperplasia															2											
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Tooth													+													
Inflammation													2													
Necrosis																										
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation	2																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy	2			1		1								2			1				1					
Endocardium, Hyperplasia							3																			
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic																	2									
Hyperplasia							1				2										1					
Thrombosis	2										2															
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia	1																									

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1-4 .. Lesion qualified as:
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DAY ON TEST	0729	0729	0692	0565	0601	0726	0659	0726	0537	0725	0687	0575	0449	0726	0481	0726	0727	0727	0727	0179	0727	0727	0727	0727	0659	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
250ppmModZnExc																										
ANIMAL ID	00401	00402	00403	00404	00405	00406	00407	00408	00409	00410	00411	00412	00413	00414	00415	00416	00417	00418	00419	00420	00421	00422	00423	00424	00425	**females (cont...)**
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																							3			
Pars Distalis, Angiectasis																										
Pars Distalis, Hyperplasia								2	2	1								3	3							
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia		2			2									1	4				1				3	2	2	
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	
Hyperplasia																										
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	4	3	2			4		3			1			3		3	3	4	3		3	4	4	3		
Cyst	X	X			X			X																X		
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Metaplasia, Squamous					1			3							3	1		2	1			1	2	1		
Cervix, Adenomyosis																								3		
Endometrium, Hyperplasia, Cystic													1			2			3		2		2			

* .. Total animals with tissue examined microscopically; Total animals with lesion and mean severity grade
+ .. Tissue examined microscopically
X .. Lesion present
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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	07 29	07 29	06 92	05 65	06 01	07 26	06 59	07 26	05 37	07 25	06 87	05 75	04 49	07 26	04 81	07 26	07 27	07 27	07 27	01 79	07 27	07 27	07 27	07 27	06 59	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
250ppmModZnExc ANIMAL ID	00 401	00 402	00 403	00 404	00 405	00 406	00 407	00 408	00 409	00 410	00 411	00 412	00 413	00 414	00 415	00 416	00 417	00 418	00 419	00 420	00 421	00 422	00 423	00 424	00 425	**females (cont...)**
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																					1					
Hyperplasia					2		2						2											2		
Lymph Node, Mandibular	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																										
Hyperplasia		2		3			2		2														2		3	
Infiltration Cellular, Plasma Cell				2	2		2		2		1	3			2		1		3					2		
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	1	1		3	2		3	2		3	2	2	2	2	1	1	1	1	2	3	1	1	2	1	2	
Pigmentation, Hemosiderin	1	3	3	1	1	1		1	1		2	2	1	1	3	3	2	1	3		3	1	3	1	1	
Lymphoid Follicle, Atrophy																										
Lymphoid Follicle, Hyperplasia	2									1	2										1				1	
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2	2	2	1		3		3		3		3			1			3	2		2	3		2	3	
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																						4				
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										

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+ .. Tissue examined microscopically
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1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0729 0401	0729 0402	0692 0403	0565 0404	0601 0405	0726 0406	0659 0407	0726 0408	0537 0409	0725 0410	0687 0411	0575 0412	0449 0413	0726 0414	0481 0415	0726 0416	0727 0417	0727 0418	0727 0419	0179 0420	0727 0421	0727 0422	0727 0423	0727 0424	0659 0425	females (cont...)
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Osteopetrosis																										
Joint, Degeneration																										
Maxilla, Fibrosis																										
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Peripheral Nerve															+											
Spinal Cord															+											
Axon, Degeneration															1											
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst, Squamous																										
Infiltration Cellular, Histiocyte	1	3	2	2		2	1	3	2	1		1	2		3	1		2	1			3	3	3		
Alveolar Epithelium, Hyperplasia																										
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0729 0401	0729 0402	0692 0403	0565 0404	0601 0405	0726 0406	0659 0407	0726 0408	0537 0409	0725 0410	0687 0411	0575 0412	0449 0413	0726 0414	0481 0415	0726 0416	0727 0417	0727 0418	0727 0419	0179 0420	0727 0421	0727 0422	0727 0423	0727 0424	0659 0425	**females (cont...)**
Harderian Gland	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Zymbal's Gland																										
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy	2	1		1	1	1	1		1		3			1		1	1		1		1		1		1	
Bilateral, Papilla, Inflammation, Acute																										
Pelvis, Inflammation															2											
Pelvis, Inflammation, Acute																										
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation															2											

DAY ON TEST	0726	0654	0488	0701	0725	0725	0488	0568	0503	0725	0725	0552	0635	0727	0727	0278	0727	0727	0727	0717	0726	0726	0726	0656	0552	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
250ppmModZnExc ANIMAL ID	00426	00427	00428	00429	00430	00431	00432	00433	00434	00435	00436	00437	00438	00439	00440	00441	00442	00443	00444	00445	00446	00447	00448	00449	00450	**females (cont...)**
ALIMENTARY SYSTEM																										
Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parasite Metazoan																										
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																							1			
Clear Cell Focus			X							X								X								
Eosinophilic Focus																										
Fatty Change																							1	2		
Mixed Cell Focus																							X			
Hepatocyte, Hypertrophy																				1						
Hepatocyte, Vacuolization Cytoplasmic																						1				
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy										1					1											
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0726 0426	0654 0427	0488 0428	0701 0429	0725 0430	0725 0431	0488 0432	0568 0433	0503 0434	0725 0435	0725 0436	0552 0437	0635 0438	0727 0439	0727 0440	0278 0441	0727 0442	0727 0443	0727 0444	0717 0445	0726 0446	0726 0447	0726 0448	0656 0449	0552 0450	females (cont...)
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Ulcer							1																		
Epithelium, Hyperplasia							2																		
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Tooth			+						+				+									+			+
Inflammation			1						2																
Necrosis													3									2			2
CARDIOVASCULAR SYSTEM																									
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Inflammation																									
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Cardiomyopathy							2		1																
Endocardium, Hyperplasia																									
ENDOCRINE SYSTEM																									
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Degeneration, Cystic																									
Hyperplasia															1										
Thrombosis																									
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia											1				1										

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2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0726 0042 6	0654 0042 7	0488 0042 8	0701 0042 9	0725 0043 0	0725 0043 1	0488 0043 2	0568 0043 3	0503 0043 4	0725 0043 5	0725 0043 6	0552 0043 7	0635 0043 8	0727 0043 9	0727 0044 0	0278 0044 1	0727 0044 2	0727 0044 3	0727 0044 4	0717 0044 5	0726 0044 6	0726 0044 7	0726 0044 8	0656 0044 9	0552 0045 0	females (cont...)
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	
Parathyroid Gland	+	+	+	+	+	+	+	M	M	+	M	M	+	+	+	M	+	+	M	+	M	+	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																										
Pars Distalis, Angiectasis						2																				
Pars Distalis, Hyperplasia								1		1	4			1	1					3			1	4		
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia					1	1				2					1		1							4		
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia															2											
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		3			3		1				4		2	3	3		4	2	4	4	2		3	2		
Cyst		X												X			X	X					X		X	
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																									2	
Metaplasia, Squamous		3			1						4			1					1				1			
Cervix, Adenomyosis																										
Endometrium, Hyperplasia, Cystic								4							2											

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DAY ON TEST	07266	06544	04888	07001	07225	07225	04888	05668	05033	07225	07225	05522	06335	07227	07227	02788	07227	07227	07227	07117	07266	07266	07266	06566	05522	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
250ppmModZnExc ANIMAL ID	00426	00427	00428	00429	00430	00431	00432	00433	00434	00435	00436	00437	00438	00439	00440	00441	00442	00443	00444	00445	00446	00447	00448	00449	00450	**females (cont...)**
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																					1					
Hyperplasia			2	2				2	2			3	2				2			3		1			2	
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy																2										
Hyperplasia						2															3					
Infiltration Cellular, Plasma Cell					2			2						2										3		
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation	2		1	3				2	1			2	2	1	1		2	1		4	1	3	1	1	2	
Pigmentation, Hemosiderin	3	3	1		3	2	1	2	1	3	2	1		1	2	2		3	3		2		3	2	1	
Lymphoid Follicle, Atrophy		2					3									3										
Lymphoid Follicle, Hyperplasia			2																						1	
Thymus	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy	2		2	1	2				2	2	3	1			2	1	1	3		3	3	3	3	2		
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia						2																				
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
MUSCULOSKELETAL SYSTEM																										

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0726 0042 6	0654 0042 7	0488 0042 8	0701 0042 9	0725 0043 0	0725 0043 1	0488 0043 2	0568 0043 3	0503 0043 4	0725 0043 5	0725 0043 6	0552 0043 7	0635 0043 8	0727 0043 9	0727 0044 0	0278 0044 1	0727 0044 2	0727 0044 3	0727 0044 4	0717 0044 5	0726 0044 6	0726 0044 7	0726 0044 8	0656 0044 9	0552 0045 0	females (cont...)
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Osteopetrosis														1												
Joint, Degeneration						1																				
Maxilla, Fibrosis																						2			2	
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Peripheral Nerve																										
Spinal Cord																										
Axon, Degeneration																										
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cyst, Squamous	X																									
Infiltration Cellular, Histiocyte	4	3		2	2	2	3		3	2	2	3	2	3	1		2	3	1	3		1	2		2	
Alveolar Epithelium, Hyperplasia	2																									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation						1				1																
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 250ppmModZnExc / ANIMAL ID	0726 0042 6	0654 0042 7	0488 0042 8	0701 0042 9	0725 0043 0	0725 0043 1	0488 0043 2	0568 0043 3	0503 0043 4	0725 0043 5	0725 0043 6	0552 0043 7	0635 0043 8	0727 0043 9	0727 0044 0	0278 0044 1	0727 0044 2	0727 0044 3	0727 0044 4	0717 0044 5	0726 0044 6	0726 0044 7	0726 0044 8	0656 0044 9	0552 0045 0	females (cont...)
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																									4	
Zymbal's Gland																								+		
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Nephropathy	1		1		1		1	1		1	1		1	1	1	1	1		1				1	1	1	
Bilateral, Papilla, Inflammation, Acute							2																			
Pelvis, Inflammation																										
Pelvis, Inflammation, Acute																									1	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0071	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc											
ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**50**
Intestine Large, Cecum											**49**
Intestine Large, Colon											**50**
Parasite Metazoan											**1**
Intestine Large, Rectum											**50**
Intestine Small, Duodenum											**49**
Intestine Small, Ileum											**49**
Intestine Small, Jejunum											**49**
Liver											**50**
Angiectasis											**1 1.0**
Clear Cell Focus											**5**
Eosinophilic Focus											**1**
Fatty Change											**4 1.8**
Mixed Cell Focus											**4**
Hepatocyte, Hypertrophy											**1 1.0**
Hepatocyte, Vacuolization Cytoplasmic											**2 1.5**
Pancreas											**49**
Acinus, Atrophy											**5 1.2**
Salivary Glands											**48**

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0071	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc											
ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
Stomach, Forestomach											**50**
Inflammation											**1 2.0**
Ulcer											**1 1.0**
Epithelium, Hyperplasia											**2 2.0**
Stomach, Glandular											**50**
Tooth											**6**
Inflammation											**3 1.7**
Necrosis											**3 2.3**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**1 2.0**
Heart											**50**
Cardiomyopathy											**8 1.4**
Endocardium, Hyperplasia											**1 3.0**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**1 2.0**
Hyperplasia											**4 1.3**
Thrombosis											**2 2.0**
Adrenal Medulla											**50**
Hyperplasia											**3 1.0**

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0071	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc											
ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
Islets, Pancreatic											**49**
Parathyroid Gland											**42**
Pituitary Gland											**50**
Hemorrhage											**1 3.0**
Pars Distalis, Angiectasis											**1 2.0**
Pars Distalis, Hyperplasia											**13 2.1**
Thyroid Gland											**50**
C-cell, Hyperplasia											**14 1.9**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Clitoral Gland											**49**
Hyperplasia											**1 2.0**
Ovary											**50**
Atrophy											**29 3.0**
Cyst											**11**
Uterus											**50**
Inflammation											**1 2.0**
Metaplasia, Squamous											**15 1.7**
Cervix, Adenomyosis											**1 3.0**
Endometrium, Hyperplasia, Cystic											**7 2.3**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0071	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc											
ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Atrophy											**2 1.0**
Hyperplasia											**14 2.1**
Lymph Node, Mandibular											**48**
Atrophy											**1 2.0**
Hyperplasia											**8 2.4**
Infiltration Cellular, Plasma Cell											**14 2.1**
Lymph Node, Mesenteric											**50**
Spleen											**50**
Hematopoietic Cell Proliferation											**39 1.8**
Pigmentation, Hemosiderin											**42 1.9**
Lymphoid Follicle, Atrophy											**3 2.7**
Lymphoid Follicle, Hyperplasia											**7 1.4**
Thymus											**49**
Atrophy											**32 2.2**
INTEGUMENTARY SYSTEM											
Mammary Gland											**50**
Hyperplasia											**2 3.0**
Skin											**50**
MUSCULOSKELETAL SYSTEM											

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	037	037	007	037	037	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc											
ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
Bone											**50**
Osteopetrosis											**1 1.0**
Joint, Degeneration											**1 1.0**
Maxilla, Fibrosis											**2 2.0**
NERVOUS SYSTEM											
Brain											**50**
Peripheral Nerve											**1**
Spinal Cord											**1**
Axon, Degeneration											**1 1.0**
RESPIRATORY SYSTEM											
Lung											**50**
Cyst, Squamous											**1**
Infiltration Cellular, Histiocyte											**38 2.2**
Alveolar Epithelium, Hyperplasia											**1 2.0**
Nose											**50**
Inflammation											**2 1.0**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**49**

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BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0370	0370	0071	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
250ppmModZnExc ANIMAL ID	00581	00582	00583	00584	00585	00586	00587	00588	00589	00590	*** TOTALS**
Harderian Gland											**49**
Hyperplasia											**1 4.0**
Zymbal's Gland											**1**
URINARY SYSTEM											
Kidney											**50**
Nephropathy											**31 1.1**
Bilateral, Papilla, Inflammation, Acute											**1 2.0**
Pelvis, Inflammation											**1 2.0**
Pelvis, Inflammation, Acute											**1 1.0**
Urinary Bladder											**50**
Inflammation											**1 2.0**

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M .. Missing tissue
A .. Autolysis precludes evaluation
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1-4 .. Lesion qualified as:
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HARLAN SPRAGUE DAWLEY RATS FEMALE
500ppm ZnExc

DAY ON TEST	0725	0725	0725	0725	0701	0701	0725	0568	0725	0725	0725	0725	0726	0726	0330	0635	0726	0726	0726	0357	0726	0488	0727	0562	0727	0645	
ANIMAL ID	00451	00452	00453	00454	00455	00456	00457	00458	00459	00460	00461	00462	00463	00464	00465	00466	00467	00468	00469	00470	00471	00472	00473	00474	00475	**females (cont...)**

ALIMENTARY SYSTEM

Esophagus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Parasite Metazoan										X																
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis														1												
Basophilic Focus										X																
Clear Cell Focus			X														X									
Eosinophilic Focus												X														
Fatty Change																										
Hepatocyte, Hypertrophy																2										
Hepatocyte, Necrosis																										
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy					1	1	1		2	2			1								1					
Acinus, Depletion Secretory																										
Acinus, Hyperplasia																										

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DAY ON TEST	0725	0725	0725	0725	0701	0701	0725	0568	0725	0725	0725	0725	0726	0726	0330	0635	0726	0726	0357	0726	0488	0727	0562	0727	0645	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc																										
ANIMAL ID	00451	00452	00453	00454	00455	00456	00457	00458	00459	00460	00461	00462	00463	00464	00465	00466	00467	00468	00469	00470	00471	00472	00473	00474	00475	**females (cont...)**
Duct, Hyperplasia, Cystic																				2						
Salivary Glands	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer																1										
Epithelium, Hyperplasia								2							1	2										
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																										
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy																	2			1						
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic					2																					
Hyperplasia													1													
Necrosis														1												
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia																										
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	07 25	07 25	07 25	07 25	07 01	07 01	07 25	05 68	07 25	07 25	07 25	07 25	07 26	07 26	03 30	06 35	07 26	07 26	03 57	07 26	04 88	07 27	05 62	07 27	06 45	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc ANIMAL ID	00 45 1	00 45 2	00 45 3	00 45 4	00 45 5	00 45 6	00 45 7	00 45 8	00 45 9	00 46 0	00 46 1	00 46 2	00 46 3	00 46 4	00 46 5	00 46 6	00 46 7	00 46 8	00 46 9	00 47 0	00 47 1	00 47 2	00 47 3	00 47 4	00 47 5	**females (cont...)**
Parathyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	M	+	+	+	
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Pars Distalis, Hyperplasia		1					4			2								3		3	3			4	4	
Thyroid Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
C-cell, Hyperplasia							2									1										
GENERAL BODY SYSTEM																										
NONE																										
GENITAL SYSTEM																										
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		1		2			1		4		2			3		2		3				2		3	2	
Cyst		X																								
Interstitial Cell, Hyperplasia																							2			
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hemorrhage																			4							
Metaplasia, Squamous				3				1			3							1				3				
Endometrium, Hyperplasia, Cystic		1					1				2			1											4	
HEMATOPOIETIC SYSTEM																										
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia		1				3		2						2		4		3	3		3				2	

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DAY ON TEST	0725	0725	0725	0725	0701	0701	0725	0568	0725	0725	0725	0725	0726	0726	0330	0635	0726	0726	0357	0726	0488	0727	0562	0727	0645	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc																										
ANIMAL ID	00451	00452	00453	00454	00455	00456	00457	00458	00459	00460	00461	00462	00463	00464	00465	00466	00467	00468	00469	00470	00471	00472	00473	00474	00475	**females (cont...)**
Lymph Node																										
Lymph Node, Mandibular	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia													2							2						
Infiltration Cellular, Plasma Cell								2							1						2					
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia															2											
Infiltration Cellular, Histiocyte						3																				
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hematopoietic Cell Proliferation		1	1	1		1		2					1	3		4	2	2	4	1	2			3	3	
Pigmentation, Hemosiderin	3	1	2	1			2		3	1	1	2	2		2		3			2	2	3	2			
Lymphoid Follicle, Hyperplasia				2				2			2								2		1					
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Atrophy		2	3	3	2	2	3				2	2	3	2			1	2		2		1	4		3	
INTEGUMENTARY SYSTEM																										
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia			4																							
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Ulcer													3													
MUSCULOSKELETAL SYSTEM																										
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0725	0725	0725	0725	0701	0701	0725	0568	0725	0725	0725	0725	0726	0726	0330	0635	0726	0726	0357	0726	0488	0727	0562	0727	0645	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc ANIMAL ID	00451	00452	00453	00454	00455	00456	00457	00458	00459	00460	00461	00462	00463	00464	00465	00466	00467	00468	00469	00470	00471	00472	00473	00474	00475	**females (cont...)**
NERVOUS SYSTEM																										
Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hydrocephalus																							2			
Peripheral Nerve															+											
Spinal Cord															+											
Axon, Degeneration															3											
RESPIRATORY SYSTEM																										
Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Infiltration Cellular, Histiocyte		2			1	2	3		3		3	3	2	3	2	1	2	1		1	2	2	2	3	2	
Inflammation				3																						
Metaplasia, Squamous																										
Alveolar Epithelium, Hyperplasia																										
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation										4												2		1		
Metaplasia, Squamous																								1		
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
SPECIAL SENSES SYSTEM																										
Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0725	0725	0725	0725	0701	0701	0725	0568	0725	0725	0725	0725	0726	0726	0330	0635	0726	0726	0357	0726	0488	0727	0562	0727	0645	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc ANIMAL ID	00451	00452	00453	00454	00455	00456	00457	00458	00459	00460	00461	00462	00463	00464	00465	00466	00467	00468	00469	00470	00471	00472	00473	00474	00475	**females (cont...)**
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Mineralization			2								2															
Nephropathy		1	1					1				2	1	1		1	1		1	1		1	1		1	
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	0362	0725	0725	0587	0396	0728	0728	0727	0727	0727	0726	0645	0243	0610	0728	0621	0473	0728	0725	0725	0714	0651	0725	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																									
500ppm ZnExc ANIMAL ID	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500	**females (cont...)**
ALIMENTARY SYSTEM																									
Esophagus	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Cecum	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Intestine Large, Colon	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Parasite Metazoan																										
Intestine Large, Rectum	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Duodenum	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Ileum	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Intestine Small, Jejunum	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Liver	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Angiectasis																										
Basophilic Focus																										
Clear Cell Focus					X		X				X															
Eosinophilic Focus			X																							
Fatty Change									1							2									1	
Hepatocyte, Hypertrophy																										
Hepatocyte, Necrosis				2																						
Pancreas	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Acinus, Atrophy				1		3		1																		
Acinus, Depletion Secretory																								1		
Acinus, Hyperplasia																				1						

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST / HARLAN SPRAGUE DAWLEY RATS FEMALE / 500ppm ZnExc / ANIMAL ID	0362	0725	0725	0587	0396	0728	0728	0727	0727	0727	0727	0726	0645	0243	0610	0728	0621	0473	0728	0725	0725	0714	0651	0725	0725	**females (cont...)**
	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500	
Duct, Hyperplasia, Cystic																										
Salivary Glands	+	+	+	M	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Stomach, Forestomach	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Ulcer																										
Epithelium, Hyperplasia																	4									
Stomach, Glandular	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
CARDIOVASCULAR SYSTEM																										
Blood Vessel	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Inflammation																				1						
Heart	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Cardiomyopathy											1	1	1						1							
ENDOCRINE SYSTEM																										
Adrenal Cortex	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Degeneration, Cystic																									2	
Hyperplasia		1	1								1	1														
Necrosis																										
Adrenal Medulla	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	
Hyperplasia						1														1						
Islets, Pancreatic	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	

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DAY ON TEST	036	072	072	058	039	072	072	072	072	072	072	072	064	024	061	072	062	047	072	072	072	071	065	072	072
HARLAN SPRAGUE DAWLEY RATS FEMALE	5	5	5	7	6	8	8	7	7	7	7	6	5	3	0	8	1	3	8	5	5	4	1	5	5
500ppm ZnExc ANIMAL ID	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500
females (cont...)																									
Parathyroid Gland	+	+	+	M	+	+	+	M	+	+	+	+	+	A	+	+	+	+	M	+	+	+	+	M	M
Pituitary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Pars Distalis, Hyperplasia			1					3	2	4	4					1				2	3				4
Thyroid Gland	+	+	+	M	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
C-cell, Hyperplasia												1							1	2					
GENERAL BODY SYSTEM																									
NONE																									
GENITAL SYSTEM																									
Clitoral Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ovary	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
Atrophy			3					1	4	2	3	3	2			4	3		2	2	2	4	1		3
Cyst		X																			X			X	
Interstitial Cell, Hyperplasia																									
Uterus	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hemorrhage																									
Metaplasia, Squamous		1	1						3	1	2	2	2		1	4	1		1	2	2		1		1
Endometrium, Hyperplasia, Cystic									3														1		
HEMATOPOIETIC SYSTEM																									
Bone Marrow	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia	2			2	3										2	2	3	3		2		3			

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DAY ON TEST	036	072	072	058	039	072	072	072	072	072	072	072	064	024	061	072	062	047	072	072	072	071	065	072	072
HARLAN SPRAGUE DAWLEY RATS FEMALE	5	5	5	7	6	8	8	7	7	7	7	6	5	3	0	8	1	3	8	5	5	4	1	5	5
500ppm ZnExc ANIMAL ID	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500
females (cont...)																									
Lymph Node																	+								
Lymph Node, Mandibular	+	+	+	M	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia	3				2						2								2						
Infiltration Cellular, Plasma Cell								2		2	2	2						3	2			2			
Lymph Node, Mesenteric	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia																									
Infiltration Cellular, Histiocyte																				2					2
Spleen	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
Hematopoietic Cell Proliferation	1		1	1	2	2	3	2	2	1	1	1			1	1	2	2		2	1	4		3	
Pigmentation, Hemosiderin	2	2	3			3	1	3	3	2	1	3	3		1	1			3		3		3		2
Lymphoid Follicle, Hyperplasia					1												3	1							
Thymus	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+
Atrophy			2	4	1	3	3	2	2	1		1	1			2	2	2			2	2		2	2
INTEGUMENTARY SYSTEM																									
Mammary Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Hyperplasia													1												
Skin	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ulcer																									
MUSCULOSKELETAL SYSTEM																									
Bone	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+

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DAY ON TEST	036	072	072	058	039	072	072	072	072	072	072	072	072	064	024	061	072	062	047	072	072	072	071	065	072	072	
HARLAN SPRAGUE DAWLEY RATS FEMALE	5	5	5	7	6	8	8	7	7	7	7	6	5	5	3	0	8	1	3	8	5	5	4	1	5	5	
500ppm ZnExc ANIMAL ID	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500	**females (cont...)**	

NERVOUS SYSTEM

Brain	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Hydrocephalus																											
Peripheral Nerve																											
Spinal Cord																											
Axon, Degeneration																											

RESPIRATORY SYSTEM

Lung	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Infiltration Cellular, Histiocyte		2	1	3		2	3	2		3	3	3			2	3			2	2		2	3		1		
Inflammation																											
Metaplasia, Squamous																1											
Alveolar Epithelium, Hyperplasia																		1									
Nose	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Inflammation																								1			
Metaplasia, Squamous																											
Trachea	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		

SPECIAL SENSES SYSTEM

Eye	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		
Harderian Gland	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		

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DAY ON TEST	0362	0725	0725	0587	0396	0728	0728	0727	0727	0727	0727	0726	0645	0243	0610	0728	0621	0473	0728	0725	0725	0714	0651	0725	0725	
HARLAN SPRAGUE DAWLEY RATS FEMALE																										
500ppm ZnExc ANIMAL ID	00476	00477	00478	00479	00480	00481	00482	00483	00484	00485	00486	00487	00488	00489	00490	00491	00492	00493	00494	00495	00496	00497	00498	00499	00500	**females (cont...)**
URINARY SYSTEM																										
Kidney	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	
Mineralization																										
Nephropathy	1	1	1		1	1			1	1	1	1	1			1	2		1	2	1		1			
Urinary Bladder	+	+	+	+	+	+	+	+	+	+	+	+	+	A	+	+	+	+	+	+	+	+	+	+	+	

DAY ON TEST	037	037	037	037	037	026	037	037	037	037	
HARLAN SPRAGUE DAWLEY RATS FEMALE	0	0	0	0	0	4	0	0	0	0	
500ppm ZnExc ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
ALIMENTARY SYSTEM											
Esophagus											**49**
Intestine Large, Cecum											**48**
Intestine Large, Colon											**49**
Parasite Metazoan											**1**
Intestine Large, Rectum											**49**
Intestine Small, Duodenum											**49**
Intestine Small, Ileum											**49**
Intestine Small, Jejunum											**49**
Liver											**50**
Angiectasis											**1 1.0**
Basophilic Focus											**1**
Clear Cell Focus											**5**
Eosinophilic Focus											**2**
Fatty Change											**3 1.3**
Hepatocyte, Hypertrophy											**1 2.0**
Hepatocyte, Necrosis											**1 2.0**
Pancreas											**49**
Acinus, Atrophy											**10 1.4**
Acinus, Depletion Secretory											**1 1.0**
Acinus, Hyperplasia											**1 1.0**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	026	037	037	037	037	
HARLAN SPRAGUE DAWLEY RATS FEMALE	0	0	0	0	0	4	0	0	0	0	
500ppm ZnExc ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
Duct, Hyperplasia, Cystic											**1 2.0**
Salivary Glands											**49**
Stomach, Forestomach											**49**
Ulcer											**1 1.0**
Epithelium, Hyperplasia											**4 2.3**
Stomach, Glandular											**49**
CARDIOVASCULAR SYSTEM											
Blood Vessel											**50**
Inflammation											**1 1.0**
Heart											**50**
Cardiomyopathy											**6 1.2**
ENDOCRINE SYSTEM											
Adrenal Cortex											**50**
Degeneration, Cystic											**2 2.0**
Hyperplasia											**5 1.0**
Necrosis											**1 1.0**
Adrenal Medulla											**50**
Hyperplasia											**2 1.0**
Islets, Pancreatic											**49**

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M .. Missing tissue
A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0264	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
500ppm ZnExc											
ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
Parathyroid Gland											**43**
Pituitary Gland											**50**
Pars Distalis, Hyperplasia											**17 2.8**
Thyroid Gland											**48**
C-cell, Hyperplasia											**5 1.4**
GENERAL BODY SYSTEM											
NONE											
GENITAL SYSTEM											
Clitoral Gland											**50**
Ovary											**49**
Atrophy											**26 2.5**
Cyst											**4**
Interstitial Cell, Hyperplasia											**1 2.0**
Uterus											**50**
Hemorrhage											**1 4.0**
Metaplasia, Squamous											**20 1.8**
Endometrium, Hyperplasia, Cystic											**7 1.9**
HEMATOPOIETIC SYSTEM											
Bone Marrow											**50**
Hyperplasia											**18 2.5**

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1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	026	037	037	037	037	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
500ppm ZnExc											
ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
Lymph Node											**1**
Lymph Node, Mandibular											**48**
Hyperplasia											**6 2.2**
Infiltration Cellular, Plasma Cell											**10 2.0**
Lymph Node, Mesenteric											**49**
Hyperplasia											**1 2.0**
Infiltration Cellular, Histiocyte											**3 2.3**
Spleen											**49**
Hematopoietic Cell Proliferation											**34 1.9**
Pigmentation, Hemosiderin											**33 2.2**
Lymphoid Follicle, Hyperplasia											**8 1.8**
Thymus											**49**
Atrophy											**33 2.2**
INTEGUMENTARY SYSTEM											
Mammary Gland											**50**
Hyperplasia											**2 2.5**
Skin											**50**
Ulcer											**1 3.0**
MUSCULOSKELETAL SYSTEM											
Bone											**50**

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+ .. Tissue examined microscopically
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A .. Autolysis precludes evaluation
BLANK .. Not examined microscopically
1-4 .. Lesion qualified as:
1) Minimal 3) Moderate
2) Mild 4) Marked

DAY ON TEST	037	037	037	037	037	026	037	037	037	037	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
500ppm ZnExc											
ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
NERVOUS SYSTEM											
Brain											**50**
Hydrocephalus											**1 2.0**
Peripheral Nerve											**1**
Spinal Cord											**1**
Axon, Degeneration											**1 3.0**
RESPIRATORY SYSTEM											
Lung											**50**
Infiltration Cellular, Histiocyte											**35 2.2**
Inflammation											**1 3.0**
Metaplasia, Squamous											**1 1.0**
Alveolar Epithelium, Hyperplasia											**1 1.0**
Nose											**50**
Inflammation											**4 2.0**
Metaplasia, Squamous											**1 1.0**
Trachea											**50**
SPECIAL SENSES SYSTEM											
Eye											**50**
Harderian Gland											**50**

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked

DAY ON TEST	0370	0370	0370	0370	0370	0264	0370	0370	0370	0370	
HARLAN SPRAGUE DAWLEY RATS FEMALE											
500ppm ZnExc											
ANIMAL ID	00591	00592	00593	00594	00595	00596	00597	00598	00599	00600	*** TOTALS**
URINARY SYSTEM											
Kidney											**49**
Mineralization											**2 2.0**
Nephropathy											**29 1.1**
Urinary Bladder											**49**

*** END OF REPORT ***

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1-4 .. Lesion qualified as:
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2) Mild 4) Marked