Error Correction Submission
To:
Jan 31, 2005
Reregistration Eligibility Science Chapter for Carbofuran
Environmental Fate and Effects Chapter

Environmental Risk Assessment and Human Drinking Water Assessment

Executive Summary

Header	Page #, Para #	Comments
Executive summary	ii, Nonlisted Species, 2nd bullet point	Sentence should end with i.e. (*at registered use rates)*
Executive summary	v, Ecological Risk Conclusions - 2nd line	Range of RQs should be *0.6 - 6,897.5*, rather than the document specified range 0.6 - 6552.
Executive summary	vi. 1st full paragraph, line 7	It appears that *maximum* should be inserted before the word estimated for clarity.
Executive summary	vi. 2nd full paragraph, line 3	It appears that *maximum* should be inserted before the word estimated for clarity.
Executive summary	xi, 2nd paragraph, line 2	Insert *acutely* before the word exposed and *freshwater invertebrate* before the word populations.
Executive summary	xi, 2nd paragraph, line 4	Define the acronym *SSD*.
Executive summary	xii, 1st paragraph, last sentence	The citation of incidents attributed to insecticide mixtures (e.g. carbofuran and azinphos-methyl) should be removed from the executive summary since the cause of mortality is uncertain.
Executive summary	xiv, last paragraph, Line 9	The 1.2 ppb value for the invertebrate LC_{50} appears to be incorrect. The lowest reported in Appendix H6 is *4.6 ppb*.

1. Environmental Risk Assessment

Header	Page #, Para #	Comments
1.2.3 Exposure Pathways	11, last sentence	Carbofuran is not appreciably volatile. Inferring exposure by this pathway would be erroneous.
1.2.4 Assessment Endpoints	12, last sentence	Although the wettable powder formulation is registered by FMC, it has never been marketed and was replaced by the flowable formulation; therefore any risks associated with the wettable powder formulation are not relevant to the current assessment.
1.2.5.1 Screening-Level Risk Assessment	14, Last paragraph, 1st sentence	Alter the sentence to end with (contaminated food items, *which is worst-case).*
1.2.5.2 Risk Hypothesis	15, last sentence in 1st paragraph of section	The meaning of the sentence appears to be unclear (suggest rewording).
1.2.5.2 Risk Hypothesis	16, 1st paragraph	It is suggested that 2-d be changed to 2-D for text consistency.

2. Characterization of Environmental Exposure

Header	Page #, Para #	Comments
2.4 Aerobic soil metabolism	24, Paragraph 1, Line 7	It is more appropriate to use the term "bound" then the term "un-extracted"
2.5 Anaerobic Aquatic Metabolism	24, Paragraph 1, Line 6	It is more appropriate to use the term "bound" then the term "un-extracted"
2.6 Aerobic Aquatic Metabolism	24, Para 1, Line 2	The phrase "*due to poor study design*" is unnecessary.
2.6 Aerobic Aquatic Metabolism	24, Para 1, Line 6	It is suggested that the last sentence be removed. *" Note that hydrolysis is expected to be negligible under these pH conditions*". This is a conclusion based on pure aqueous hydrolysis. Soil hydrolysis is governed by many other factors such as soil matrix catalysis.

2. Characterization of Environmental Exposure (continued)

2.12 Terrestrial Field Dissipation	29 and 30 and Table 2.4	FMC's most recent terrestrial field dissipation study is not discussed in this paragraph or in the tabular summary of dissipation studies. Please add discussion of "Furadan 4F Insecticide Terrestrial Field Dissipation", 1998 (MRID#44656802). The study results show the half-lives to be 4 and 113 days for the Iowa and Kansas sites, respectively.

3. Refined Terrestrial Risk

Header	**Page #, Para #**	**Comments**
3.0 Refined Terrestrial Risk	Page 31, Paragraph 1	See Appendix *1* not I
3.0 Refined Terrestrial Risk	31, 2nd sentence, 1st paragraph	Range of RQs should be *0.6 - 6,897.5*, not 0.6 to 6552.
3.0 Refined Terrestrial Risk	Page 32, Paragraph 1, line 4	"… and associated with (insert) *time in* treated fields.'
3.0 Refined Terrestrial Risk	Page 33, Paragraph 1	"… of the screening level (insert) *deterministic* model."
3.2.2.4 Cw in Puddles Contaminated by Field Runoff	Page 51, line 13	The units are omitted (*ppb*) for the means for corn and alfalfa.
3.3.1 Acute Toxicity to Terrestrial Species	52, line 2	"Fulvous Whistling Duck" for 7.9 mg/kg to the…' should read *Fulvous Whistling Duck to 7.9 mg/kg for the…'*
3.3.2 Laboratory Toxicity Test Limitations	57, line 2	Please reference (could not verify) where the LC_{50} values for mallards is contained within the document.
3.3.3 Inter-Species Toxicity Variability	59, Step 1 equation	Equations are confusing. Suggest more space between the two or else it appears to be one equation. The body weight scaling factor in the equation does not match the text. Please define the W.
3.3.3 Inter-Species Toxicity Variability	59, Step 3 equation	Please define *SD* and show how the 1.71 value is obtained.

3. Refined Terrestrial Risk (continued)

3.3.2 Laboratory Toxicity Test Limitations	57, 2nd sentence	It is not clear where the values in the sentence came from. Please show which studies were used to obtain the average LC_{50}=96.7 Using the LC_{50} values from Table 3.10 results in an average of 398.8 ppm
3.3.4 Intra-Species Toxicity Variablity	62, 1st paragraph	Display the graph where the geometric mean of 5.7 is derived.
3.3.5 Chronic Risk to Terrestrial Species	64, 2nd paragraph	Goldenthal & Rapp (1979) reference should be with 2nd sentence, not the 1st.
3.3.5 Chronic Risk to Terrestrial Species	65, Paragraph 1, Line 7	"…a *33 fold* (not 51) difference…"
3.4.2 Results and Discussion	68, first full Paragraph 1, Line 3	"…the choice of drinking water (insert the word) *puddle* source does not influence..."
3.4.2 Results and Discussion	79, 3rd sentence	Max….was 48% Insert - *for the grasshopper sparrow*
3.4.3.1 Effect of Time Step on Exposure Predications	86, Equation	Indicate reference of chicken elimination rate.
Table 3.18	96, row corn, column 1972-1991, column post 1991	Table 3.18 (p-96) title should be "*from 1972 to 2000*" (coincides with text immediately above and Table 3.19 (p 100) which has no incidents after 2000. Second column (1972-1991), corn should be 3 incidents and 3rd column (post 1991) should be 1991-2000 and corn incidents should be 4 rather than 6.
	96, row alfalfa column 1972-1991, column total incidents	Second column (1972-1991), alfalfa should be *11* incidents and 4th column (total should be *20* rather than 21. The 17Mar1992, Stanislaus County incident was counted twice. Incident was listed in both Table 3.19 and 3.20
	96, row other column 1972-1991, column post 1991	Second column (1972-1991), other should be 1 rather than 2 and 3rd column (post 1991) should be 2 rather than 1
	96, row total	1972-1991 should be 16. Post 1991 should be 14. Total should be 30.
3.5.1 Wildlife Incident Reports	99, last line	31 should be *30*.

3. Refined Terrestrial Risk (continued)

Table 3.19	100, rows 1, 3, and 5	Mixtures of several products with carbofuran should be presented in a separate table.
3.5.2.1 Cotton	116, paragraph after Table 3.22	Since this is a risk assessment for wildlife, it appears appropriate to remove the human incident portion from this section.
3.5.3.1 Flowable Carbofuran Corn Studies	121, 1st paragraph, last sentence	The sentence appears to be an incomplete thought.
3.6 Refined Terrestrial Ecological Risk Summary and Conclusions	131, 2nd paragraph, last sentence	The "redwing blackbirds" are not properly referenced here since the mortality ranges are from 24-64% instead of the 95% value.
3.6 Refined Terrestrial Ecological Risk Summary and Conclusions	132, line 7	31 should be 30.

4. Refined Aquatic Risk

Header	**Page #, Para #**	**Comments**
4.1.2 Routes of Exposure Considered	Page 135, Paragraph 2	Aqueous solubility is *350* not 700 mg/L. Reference: Alvarez, M. September 1998. Carbofuran Evaluation of Physical Properties. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. FMC-378AF8765-7. (MRID#44656801)
4.1.3 Overview of Surface Water Exposure Model	Page 135, Paragraph 1	The version number of PRZM and EXAMS model needs to be included.

4. Refined Aquatic Risk (continued)

4.1.3 Overview of Surface Water Exposure Model	136, Table 4.2	Aerobic Aquatic Metabolism half-life is *41* not 641 days. Reference: Saxena, A. et al. 1994. Aerobic Aquatic Metabolism of 14C-Carbofuran. Battelle, Columbus, Ohio, USA. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. PC-0199. (MRID#43286901) Anaerobic Aquatic Metabolism half-life is 189 not 624 days. Reference: Saxena, A. et al. 1994d. Anaerobic Aquatic Metabolism of 14C-Carbofuran. Battelle, Columbus, Ohio, USA. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. PC-0206. (MRID#43437101)
4.2.2 Acute Toxicity: Aquatic Invertebrates	140, last sentence, 1st paragraph	Red crayfish LC50 = *2360* ppb, not 2700 ppb (FMC A1982-696-01 & NCT 354.61-02)
4.2.2 Acute Toxicity: Aquatic Invertebrates	140, 2nd paragraph, 2nd sentence	*1.6* for midge not 1.4, to *44,600* not 48, 500.
4.2.7.1 Acute SSD for Freshwater Fish and Amphibians	145, Paragraph 1, Line 9	Value for the 95th percentile LC_{50} is missing in the text
4.2.7.1 Acute SSD for Freshwater Fish and Amphibians	145, 3rd to last sentence	…percentile LC_{50} is 950 ppb ***(****950* ppb is missing**)**
4.2.7.1 Acute SSD for Freshwater Fish and Amphibians	145, Table 4.3	Units are needed in the table for LC_{50} or EC_{50} column.
4.2.7.2 Acute SSD for Freshwater Invertebrates	146, Paragraph 1, Line 13	Figure is missing a designation number in the sentence.
4.2.7.3 Acute SSD for Saltwater Invertebrates	147, Paragraph 1	Should state (*Table 4.3*) not (Table 4.4).
4.2.7.3 Acute SSD for Saltwater Invertebrates	147, Paragraph 1	There is no Table 4.4 present in this section of the document.

4. Refined Aquatic Risk (continued)

4.2.8 Intra-Species Variability	148, Figure	Figure is missing a figure number
4.3.1.1 Corn – Maximum Foliar Application Rate	150	Please state the 2-D Monte Carlo analysis program that was employed?
4.4.1 Carbofuran Monitoring in Surface Water and Ground Water	180, 1st paragraph, Line 3	Chapter 6 should be referenced not Chapter 7.

5. Granular Carbofuran

No mathematical, computational, or typographic errors in this section.

6. Drinking Water (Human) Resources Assessment

Header	**Page #, Para #**	**Comments**
6.0 Drinking Water (Human) Resources Assessment	185, paragraph 3, Line 6	Table *6.23* should be referenced instead of Table 6.24.
6.0 Drinking Water (Human) Resources Assessment	186, paragraph 1, Line 2	Table *6.20* should be referenced instead of Table 6.21.
6.0 Drinking Water (Human) Resources Assessment	187, paragraph 2, Line 2	Section *6.3.2* should be referenced instead of Section 6.3.
6.1.1 Surface Water Modeling of Carbofuran Transport into Drinking Water Sources	189, Table 6.2	Water Solubility should be *350* instead of 700. Alvarez, M. September 1998. Carbofuran Evaluation of Physical Properties. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. FMC-378AF8765-7. (MRID#44656801)
6.1.1 Surface Water Modeling of Carbofuran Transport into Drinking Water Sources	189, Table 6.2	Aerobic Aquatic Metabolism half-life is *41* instead of the 641 days listed. Reference: Saxena, A. et al. 1994. Aerobic Aquatic Metabolism of 14C-Carbofuran. Battelle, Columbus, Ohio, USA. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. PC-0199. (MRID#43286901)

6. Drinking Water (Human) Resources Assessment (continued)

Section 6.1.1 Surface Water Modeling of Carbofuran Transport into Drinking Water Sources	191, Table 6.3	The low rate label modeling results from ME and ID potato, CA grape, PA and CA alfalfa appear to be missing.
Section 6.2.2.1 Prospective Ground Water Monitoring	212, Table 6.21	The maximum value for the range column of 65 ppb should be changed to match the text value of 64 ppb.
Section 6.2.2.1 Prospective Ground Water Monitoring	213, paragraph 3	Figure 6.1 mentioned in line 1 is missing.
Section 6.2.2.1 Prospective Ground Water Monitoring	214, paragraph 3	In line 5, 10 lb/cre should read 10 lb/acre

7. References

There appear to be a considerable number of errors discovered in this section (pages 253-272). To assist in error correction, a section at the end of this document is provided with a breakdown of the error categories beginning on page 15.

Appendix 1

Header	**Page #, Para #**	**Comments**
Appendix 1, Executive summary, Appendix 1, 1.1.1, Identification, Formulation, and Mechanism of Action Appendix 1, 1.3 Receptors and Assessment Endpoints	ix, 1st paragraph, 1, 2nd to last sentence, page 7	Although the wettable powder formulation is registered by FMC, it has never been marketed and was replaced by the flowable formulation; therefore any risks associated with the wettable powder formulation are not relevant to the current assessment.
Appendix 1, 2.2 Avian and Mammalian Exposure Assessment	27	The FATE model should be referenced.
Appendix 1, 2.3 Terrestrial Screening Level Effects Assessment	28, 1st paragraph, last sentence	Please change to read as "… ECOTOX, but *were not* used in the risk assessment."

Appendix 1 (continued)

Appendix 1, 2.3.1 Toxicological Profile for Terrestrial Wildlife	28, 1st paragraph, 2nd sentence	Insert either "*MRID*" or "*ACC#* (whichever is appropriate) to study # 2182006-06
Appendix 1, 2.4.9 Secondary Poisonings	65, 2nd full paragraph	It is stated that 406 raptor mortalities are due to carbofuran – then it is stated that 25 were from label uses, 55 due to label abuse and for 36 use pattern was unknown – this adds up to 116 not 406.
Appendix 1, 2.4.9 Secondary Poisonings	66, 67 tables 2.4.3, 2.4.4	It is unclear how the number of prey species needed to be consumed to equal the LD_{50} is calculated. Need to know the ppm in prey species. How is that derived?
Appendix 1, 2.6.1 Residue Assumptions	78, 1st paragraph, last sentence 79, table 2.6.1	A NOEC of 15 ppm is available from a quail reproduction study. This number should be used rather than an estimated value.
Appendix 1, 2.6.2 The Significance of Foliar Half-Life Assumptions Used in the Model	80, 1st paragraph, 2nd sentence	insert *days* after 35
Appendix 1, 2.6.2 The Significance of Foliar Half-Life Assumptions Used in the Model	80, 1st paragraph, 2nd sentence	*270* days instead of 298
Appendix 1, 2.6.2 The Significance of Foliar Half-Life Assumptions Used in the Model	80, 1st paragraph, last sentence	Insert *days* after 2.72, *5* instead of 7 and *19* instead of 21 days.
Appendix 1, 2.6.2 The Significance of Foliar Half-Life Assumptions Used in the Model	82, 1st paragraph, 2nd sentence	"… for *130* instead of 157 and *270* instead of 298 days."
Appendix 1, 2.6.3 Chronic Endpoints	82, 2nd sentence	The (*NOEC)* instead of the (LOEC) for mallard is 2.0 ppm…..
Appendix 1, 2.6.3 Chronic Endpoints	83, 2nd paragraph, Line 2	This appears to be an FMC study, please provide an MRID #.

Appendix 1 (continued)

Table 3.2.1 Carbofuran Fate Properties	Page 86, Table 3.2.1	Aqueous solubility is *350* not 700 mg/L. Reference: Alvarez, M. September 1998. Carbofuran Evaluation of Physical Properties. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. FMC-378AF8765-7. (MRID#44656801)
Table 3.2.1 Carbofuran Fate Properties	Page 86	Aerobic Aquatic Metabolism half-life is *41* not 641 days. Reference: Saxena, A. et al. 1994. Aerobic Aquatic Metabolism of 14C-Carbofuran. Battelle, Columbus, Ohio, USA. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. PC-0199. (MRID#43286901)
Table 3.2.1 Carbofuran Fate Properties	Page 86	Anaerobic Aquatic Metabolism half-life is *189* not 624 days. Reference: Saxena, A. et al. 1994d. Anaerobic Aquatic Metabolism of 14C-Carbofuran. Battelle, Columbus, Ohio, USA. Unpublished report for FMC Corporation Princeton, New Jersey, USA. Report no. PC-0206. (MRID#43437101)
Table 3.3.1 Summary of Measurement Endpoints…	Page 92	The bluegill sunfish value of 88 ppb is listed as "core" whereas in the EPA ECOTOX database it is listed as "supplemental".
Table 3.3.1 Summary of Measurement Endpoints…	Page 92	The NOEC that should be used for the Sheepshead minnow for chronic RAs should be *6.0* ppb rather than 2.6 ppb.
Appendix 1, 3.3.1 Acute Toxicity: Freshwater Fish and Amphibian Tests	93, last paragraph	There appear to be *10* freshwater species in Appendix H, NOT 8.

Appendix 1 (continued)

Appendix 1, 3.3.3 Acute Toxicity: Freshwater Aquatic Invertebrates	96, 2nd full paragraph	Please change midge lowest LC_{50} to *1.6* from 1.4.
Appendix 1, 6.3 Listed Species Occurrence in Carbofuran Use Areas	139-144, Table 6.3.1-6.3.4	In the pdf version, columns 6 & 8 are missing a taxonomic group title.
Appendix 1, 7.0 References		There appear to be a considerable number of errors discovered in this section (pages 147-153). To assist in error correction, a section at the end of this document is provided with a breakdown of the error categories beginning on page 15.

Appendix A Furadan 4F, Section 24C Uses

Crop/SLN#	Page #, Column	Comments
Corn, Field AL880003	A-1, Application rate and number of applications/year, and Application method column	Application rate: 1 pint per acre in 20-30 gallons of water (max of 4 foliar applications allowed). Application method: ground application only. Direct spray to base of plants.
Corn, Field SC79002600	A-1, Application rate and number of applications/year	Insert 1 application/season.
Cucurbits DE93000100	A-1, Application rate and number of applications/year	3.8 oz per 1000 linear ft of row (2 pints per acre based upon 60 inch row spacing)
Nursery Stock OR83003600	A-4, SLN#	The SLN number should be OR83003600 instead of OR83006000
Peppers NM98000200	A-5, Pest	The pests should include thrips.
Peppers TX03000200	A-5, SLN#, Application rate	The SLN# is TX03000200 instead of TX93001100. Application rate: 1 to 1.5 quarts per acre (1 to 1.5 pounds ai per acre)
Potatoes ID91000700	A-6, Pest, Application rate and number of applications/year, Application method columns	Pest: wireworms (suppression only). Application rate/year: Do not make a foliar application if Furadan was applied at planting. Application method: At planting up to 4 inch rosette.

Appendix A Furadan 4F, Section 24C Uses (continued)

Potatoes OR91000600	A-6, Pest, Application rate and number of applications/year, Application method columns	Pest: wireworms (suppression only). Application rate/year: Do not make a foliar application if Furadan was applied at planting. Application method: At planting up to 4 inch rosette.
Appendix A	A-12	The table is not complete.

Appendix B Furadan 15G, Section 24C Uses

Crop/SLN#	**Page #, Column**	**Comments**
Cucurbits MI-82002500	B-1, SLN#	The SLN number should be MI82002500 instead of MI93000100
Cucurbits MO-86000300	B-1, SLN#	The SLN number should be MO86000300 instead of MO93002000

Appendix C Furadan 4F, Usage Information Used in RQ Calculations

Crop/SLN#	**Page #, Column**	**Comments**
Alfalfa Section 24C	C-1	All alfalfa at planting Section 24(c) labels have been cancelled. This use should be remove from RQ calculations.

Appendix D, Equations and Sample Calculations:

Header	**Page #, Column**	**Comments**
Appendix D	D-1, Broadleaf plants and insects	Last sentence – correct bird consumption is *115%* instead of 114%
Appendix D	D-2, Seeds, 1st sentence	Bird consumes *25.6%* instead of 28.4%

Appendix E

Header	**Page #, Column**	**Comments**
Appendix E	E-3, third row, 4th column, 2nd line	First 50s should be deleted.

Appendix F

No mathematical, computational, or typographic errors in this section.

Appendix G

Header	Page #, Column	Comments
Appendix G, Table of Contents	G-1	Page numbers for NC Tobacco should be G17, G17, and G18 instead of F-58, F-67, and F-69
Appendix G,	G-2 to G17, Input File 1a to 8a	Corrections to aqueous water solubility as stated earlier (350 mg/L instead of 700 mg/L) , Aerobic aquatic metabolism (41 days instead of 642 days)

Appendix H

Header	Page #, Column	Comments
Appendix H	H-1, 1st row	The validity of GS0003503 as a core study is questioned.
Appendix H	H-4, 1st table, 3rd row	Red crayfish tox value is 2360 ppb, NOT 2700.

Appendix I, J, K, L, M, N, O, P, Q and R
No mathematical, computational, or typographic errors in these sections.

Appendix S
There appear to be a considerable number of errors discovered in this section (pages S1-S38). To assist in error correction, a section at the end of this document is provided with a breakdown of the error categories beginning on page 15.

Appendix 2 through 5
No mathematical, computational, or typographic errors in these sections.

Appendix 6

Header	Page #, Para #	Comments
Appendix 6	1, first row	This incident belongs in Appendix 5 (Wildlife Poisoning Incidents: Apparent Misuse)
Appendix 6	1, 2nd row	This incident belongs in Appendix 5 (Wildlife Poisoning Incidents: Apparent Misuse)
Appendix 6	2, first row	This incident belongs in Appendix 5 (Wildlife Poisoning Incidents: Apparent Misuse)
Appendix 6	3, 7th row	This incident belongs in Appendix 5 (Wildlife Poisoning Incidents: Apparent Misuse)

Appendix 7 through 14
No mathematical, computational, or typographic errors in these sections.

Appendix 15

Appendix 15	1, last row	A negotiated settlement between FMC and EPA in 1991 regarding the discontinuance of the granular formulation in the US on corn makes reference to this incident of questionable significance. In addition FMC has already told EPA in previous responses that the reason the aquatic organisms died in this incident was due to the field becoming flooded by the local river after heavy rains and then the river retreated thereby land-locking the fish and eventually causing their deaths.

Appendix 16
No mathematical, computational, or typographic errors in this section.

Appendix 17
There appear to be a considerable number of errors discovered in this section (pages 1-14). To assist in error correction, a section at the end of this document is provided with a breakdown of the error categories beginning on page 15.

Errors Pertaining to Referencing within the Document

There were a considerable number of what appear to be referencing errors. The errors fall into three different categories and are being distinguished as such to aid in correction. The referencing categories consist of the following:

1) Reference is contained (i.e. name with a year) within the text of the document section but does not appear in the reference sections.
2) Reference is contained within the text of the document but the year does not match what is in the reference section.
3) Reference is contained in a given reference section but does not appear to be referenced in the text.

Section 7.0 References

Category 1)
Reference is contained (i.e. name with a year) within the text of the document section but does not appear in the reference section.

None found.

Category 2)
Reference is contained within the text of the document but does not match what is in the reference section.

None found.

Category 3)
Reference is contained in a given reference section but does not appear to be in the text.

Decisioneering Inc. (2000). Crystal Ball 2000 Users Manual.

Dembele, K., E. Haubruge, and C. Gaspar. 2000. Concentration effects of selected insecticides on brain acetylcholinesterase in the common carp (Cyprinus carpio L.). Ecotoxicology and Environmental Safety 45:49-54.

Haubruge, E. and Toutant, J.-P. 1997. Acteylcholinesterase in the olfactory organ of the common carp *Cyprinus carpio* (Teleost:Cyprinidae): characterization of molecular forms and *in vitro* and *in vivo* inhibition by carbofuran. Belgian Journal of Zoology 127(1): 63-73.

Section 7.0 References (continued) (category 3)

Ma, Q.L. Wauchope, R.D., Hook, J.E., Johnson, A.W., Truman, C.C., Dowler,C.C., Gascho, G.J., Davis, J.G., Sumner, H.R., and Chandler, L.D. (1998). GLEAMS, OPUS, and PRZM- 2Model Predictions Versus Measured Runoff from a Coastal Plain Loamy Sand, *Transactions of the ASAE*, 41(1), 77-88.

Ma, Q. Hook, J.E., Wauchope, R.D., Dowler, R.D., Johnson, A.W., Davis, J.G., Gascho, G.J., Truman, C.C., Sumner, H.R., and Chandler, L.D. 2000. GLEAMS, Opus, PRZM2β and PRZM3 Simulations Compared with Measured Atrazine Runoff, *Soil Science Society of America Journal*. 64(6), 2070-2079

Ma, Q.L., Smith, A.E., Hook, J.E., and Bridges, D.C., Surface Transport of 2,4-D from Small Turf Plots: Observations Compared with GLEAMS and PRZM-2 model Simulations, *Pesticide Science* 55, 423-433.

Mayer, F. Jr. and M. Ellersiek. 1986. Manual of Acute Toxicity: Interpretation and Data Base for 410 Chemicals and 66 Species of Freshwater Animals. United States Department of the Interior Fish and Wildlife Service, Resource Publication 160:1-505.

Morbidity and Mortality Weekly Report (MMWR). 1999. Farm worker illness following exposure to carbofuran and other pesticides - Fresno County California 1998. Centers for Disease Control and Prevention, MMWR 48(6):113-116.

Moore, A. and C. Waring. 1998. Mechanistic effects of a triazine pesticide on reproductive endocrine function in mature male Atlantic salmon (*Salmo salar* L.) parr. Pesticide Biochemistry and Physiology 62:41-50.

United State Department of Agriculture (USDA). 1972. U.S. Soil Conservation Service Paper 537

USDA. 1982. Ponds-Planning, Design, Construction. Soil Conservation Service, Agriculture Handbook Number 590.

Waring, C. and A. Moore. 1997. Sublethal effects of a carbamate pesticide on pheromonal mediated endocrine function in mature male Atlantic Salmon (*Salmo salar* L.) parr. Fish Physiol.Biochem. 17(1-6):203-211.

Appendix 1, Section 7.0 References

Category 1)
Reference is contained (i.e. name with a year) within the text of the document section but does not appear in the reference section.

Karnak and Collins, 1974

Category 2)
Reference is contained within the text of the document but does not match what is in the reference section.

None found.

Category 3)
Reference is contained in a given reference section but does not appear to be in the text.

Booth G. M., L. B. Best, M. W. Carter, and C. D. Jorgensen. 1989 (23 May). Effects of Furadan 4F on birds associated with Kansas and Oklahoma alfalfa fields (A87-2306/2307). Unpub. rep. by Environmental Labs, Inc. Submitted by FMC Corp., Philadelphia, PA. 810 pp. [MRID 411107-01]

Heimbach, F. 1984. Comparison of laboratory methods, using Eisenia foetida and Lumbricus terrestris, for the assessment of the hazard of chemicals to earthworms. J. Plant Diseas. Protect. 92(2): 186-193.

Mayer, Foster L. Jr. and Mark R. Ellersiek. 1986. Manual of Acute Toxicity: Interpretation and Data Base for 410 Chemicals and 66 Species of Freshwater Animals. United States Dept. of the Interior Fish and Wildlife Service. Resource Publication 160:1-505.

Roberts, B.L. and H. W. Dorough. 1983. Relative toxicities of chemicals to the earthworm Eisenia Foetida. Environ. Toxicol. Chem. 3: 67-78.

Roberts, N. L. and C. N. K. Phillips. 1983a. The effects of dietary inclusion of FMC 10242 on reproduction in the bobwhite quail. Unpub. rep. by Huntington Research Center, Cambridgeshire, England. [Acc.# 250746]

Roberts, N. L. and C. N. K. Phillips. 1983b. The effects of dietary inclusion of FMC 10242 on reproduction in the mallard duck. Unpub. rep. by Huntington Research Center, Cambridgeshire, England. [Acc.# 250745]

Appendix S References

Category 1)
Reference is contained (i.e. name with a year) within the text of the document section but does not appear in the reference section.

Baily, 1996

Bakthavathsalam, 1984.

Bouman, H., and A. Reinecke, 1987

Dietrich, 1995

Franson et. al., 1996

Herbrandson, C. et.al., 1999

Kamak, 1974

Padhy, R. N. 2001

Patil et. al., 1992

Stinson, 1984

Category 2:
Reference is contained within the text of the document but does not match what is in the reference section.

Felsot, 1998 Title?

Surgeoner, year?

Category 3:
Reference is contained in a given reference section but does not appear to be in the text.

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