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*****ADDENDUM*****
DATA EVALUATION RECORD

1. **CHEMICAL:** NTN 33893. 129099
Shaughnessey No. 129059.

2. **TEST MATERIAL:** Bay NTN 33893 Technical; Batch No. 9030211; Formula PF8543; 95% active ingredient; a beige powder.

3. **STUDY TYPE:** Freshwater Fish Early Life-Stage Test. Species Tested: Rainbow Trout (*Oncorhynchus mykiss*).

4. **CITATION:** Cohle, P. and J. Bucksath. 1991. Early Life Stage Toxicity of NTN 33893 Technical to Rainbow Trout (*Oncorhynchus mykiss*) in a Flow-Through System. Report No. 101214. Study conducted by Analytical Bio-Chemistry Laboratories, Inc., Columbia, Missouri. Submitted by Mobay Corporation, Agricultural Chemicals Division, Kansas City, Missouri. Original report - EPA MRID No. 420553-20 - Supplemental Raw Data Submission - EPA MRID No. 424805-01).

5. **REVIEWED BY:**
Dana Lateulere, Biologist
Ecological Effects Branch
Environmental Fate and Effects Division

Signature: Dana Lateulere
Date: 12/14/92

6. **APPROVED BY:**
Ann Stavola, Section Head,#5
Ecological Effects Branch
Environmental Fate and Effects Division

Signature:
Date: 12/14/92

7. **CONCLUSIONS:** The raw length and weight data received for the Fish Early Life Stage study with NTN 33893 was statistically analyzed using Bonferroni's Test. The controls were determined to be significantly different via a t-test; therefore, only the solvent control data was used for analysis. The weight data showed significant effects at 1.2, 4.9, 9.8, and 19 mg a.i./L. The length data showed effects at $\geq$2.5 mg a.i./L.

Effects occurred at the following levels in the respective parameters:

Fry Survival - 1.2, 4.9, 19.0 mg a.i./L
Percent swim-up - 1.2, 4.9, 9.8, and 19.0 mg a.i./L
Length - 2.3, 4.9, 9.8 and 19.0 mg a.i./L
Weight - 1.2, 4.9, 9.8, and 19.0 mg a.i./L

Although there is no clear dose response for the weight data, percent swim-up or fry survival (no significant effects occurred at 2.5 mg a.i./L), EEB aquatic biologists

concur that the significant difference from control in all three parameters cannot be disregarded as biological variability. Therefore, a NOEC was not determined for the three parameters. The study will be classified as supplemental; however, a new study does not have to be performed unless the registrant wishes to refute the presumption of chronic effects that these data suggest.

D. **Adequacy of the Study:**

(1) **Classification:** Supplemental; study does not have to be repeated.

(2) **Rationale:** A NOEC was not determined for fry survival, percent swim-up or weight.

(3) **Repairability:** No.

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	27.8344	CALCULATED t VALUE =	3.3111
GRP2 (BLANK CRTL) MEAN =	26.9339	DEGREES OF FREEDOM =	113
DIFFERENCE IN MEANS =	0.9005		

TABLE t VALUE (0.05 (2),130) = 1.978** SIGNIFICANT DIFFERENCE at alpha=0.05
TABLE t VALUE (0.01 (2),130) = 2.614** SIGNIFICANT DIFFERENCE at alpha=0.01

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	SOLVENT	60	23.274	32.221	27.834
2	1.3	48	17.379	30.565	27.038
3	2.5	58	19.868	30.940	26.650
4	5.0	52	23.263	29.713	26.669
5	10.0	56	23.602	36.073	26.835
6	20.0	51	19.019	28.756	25.422

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	SOLVENT	2.533	1.592	0.205
2	1.3	6.021	2.454	0.354
3	2.5	4.613	2.148	0.282
4	5.0	2.311	1.520	0.211
5	10.0	3.741	1.934	0.258
6	20.0	3.425	1.851	0.259

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F

Between	5	165.652	33.130	8.880
Within (Error)	319	1190.262	3.731	
Total	324	1355.914		

Critical F value = 2.29 (0.05,5,120)
Since F > Critical F REJECT Ho:All groups equal

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	SOLVENT	27.834	27.834		
2	1.3	27.038	27.038	2.129	
3	2.5	26.650	26.650	3.331	*
4	5.0	26.669	26.669	3.183	*
5	10.0	26.835	26.835	2.786	*
6	20.0	25.422	25.422	6.557	*

Bonferroni T table value = 2.36 (1 Tailed Value, P=0.05, df=120,5)

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	SOLVENT	60			
2	1.3	48	0.882	3.2	0.796
3	2.5	58	0.839	3.0	1.185
4	5.0	52	0.863	3.1	1.165
5	10.0	56	0.846	3.0	1.000
6	20.0	51	0.867	3.1	2.412

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	165.652	33.130	8.880
Within (Error)	319	1190.262	3.731	

Total	324	1355.914

Critical F value = 2.29 (0.05,5,120)
Since F > Critical F REJECT Ho:All groups equal

NTN FISH ELS, LENGTH DATA
File: FISHEARL Transform: NO TRANSFORM

TUKEY method of multiple comparisons

GROUP	IDENTIFICATION	TRANSFORMED MEAN	ORIGINAL MEAN	GROUP 06	03	04	05	02	01
6	20.0	25.422	25.422	\					
3	2.5	26.650	26.650	*	\				
4	5.0	26.669	26.669	*	.	\			
5	10.0	26.835	26.835	*	.	.	\		
2	1.3	27.038	27.038	*	.	.	.	\	
1	SOLVENT	27.834	27.834	*	*	*	.	.	\

* = significant difference (p=0.05) . = no significant difference
Tukey value (6,319) = 4.10 s = 3.731

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

t-test of Solvent and Blank Controls Ho:GRP1 MEAN = GRP2 MEAN

GRP1 (SOLVENT CRTL) MEAN =	0.9166	CALCULATED t VALUE =	3.2630
GRP2 (BLANK CRTL) MEAN =	0.8007	DEGREES OF FREEDOM =	111
DIFFERENCE IN MEANS =	0.1159		

TABLE t VALUE (0.05 (2),130) = 1.978** SIGNIFICANT DIFFERENCE at alpha=0.05
TABLE t VALUE (0.01 (2),130) = 2.614** SIGNIFICANT DIFFERENCE at alpha=0.01

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	SOLVENT	59	0.521	1.371	0.917
2	1.5	45	0.206	1.479	0.794
3	2.0	55	0.299	1.270	0.821
4	5.0	51	0.193	1.389	0.801
5	10.0	56	0.249	1.405	0.782
6	20.0	49	0.109	1.045	0.628

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	SOLVENT	0.045	0.211	0.028
2	1.5	0.053	0.229	0.034
3	2.0	0.043	0.208	0.028
4	5.0	0.058	0.240	0.034
5	10.0	0.052	0.228	0.030
6	20.0	0.035	0.188	0.027

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F

Between	5	2.290	0.458	9.542
Within (Error)	309	14.684	0.048	
Total	314	16.974		

Critical F value = 2.29 (0.05,5,120)
Since F > Critical F REJECT Ho:All groups equal

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	SOLVENT	0.917	0.917		
2	1.5	0.794	0.794	2.821	*
3	2.0	0.821	0.821	2.340	
4	5.0	0.801	0.801	2.749	*
5	10.0	0.782	0.782	3.293	*
6	20.0	0.628	0.628	6.820	*

Bonferroni T table value = 2.36 (1 Tailed Value, P=0.05, df=120,5)

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

BONFERRONI T-TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	SOLVENT	59			
2	1.5	45	0.102	11.2	0.122
3	2.0	55	0.097	10.6	0.096
4	5.0	51	0.099	10.8	0.115
5	10.0	56	0.096	10.5	0.135
6	20.0	49	0.100	10.9	0.289

NTN 33893 WEIGHT DATA FISH ELS
File: WEIGHTFEL Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	2.290	0.458	9.542
Within (Error)	309	14.684	0.048	