

Annex A-9

Report: Site-Specific Target Level for Arsenic in **Surface Waters Associated with the Terra Mine Wetland**







SITE-SPECIFIC TARGET LEVEL FOR ARSENIC IN SURFACE WATERS ASSOCIATED WITH THE TERRA MINE WETLAND



Prepared For

Public Works and Government Services Canada on behalf of:
Aboriginal Affairs & Northern Development Canada

Prepared By:

SENES Consultants

FINAL

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March 2014

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TABLE OF CONTENTS

			<u>Page No.</u>
1.0	INTE	RODUCTION	1-1
	1.1	Site-Specific Target Level	1-2
	1.2	Application of SSTLs	
	1.3	Report Structure	
2.0	SITE	DESCRIPTION	2-1
3.0	MET	THODOLOGY	3-1
	3.1	Site Specific Target Level Development for Water	3-1
	3.2	Species Sensitive Distribution Approach	
	3.3	Species Sensitivity Distribution for Arsenic	
	3.4	Application of Species Sensitive Distribution Curve to Wetland	
		3.4.1 Protection Levels	
		3.4.2 Measured Arsenic Concentrations	3-6
	3.5	Application of the Arsenic SSTL for the Wetland	3-8
4.0	CON	ICLUSIONS	4-1
5.0	REF	ERENCES	5-1

APPENDIX A: Summary of Aquatic Toxicity Data Considered in Developing Species Sensitive Distribution Curve for Arsenic

LIST OF TABLES

		Page No.
Table 2-1	Mean Arsenic Concentrations Measured in Surface Waters at the Terra Mine Site, 2007 to 2013	
Table 3-1 Table 3-2	Summary of Data for Development of SSD for Arsenic Aquatic Toxicity Arsenic SSD Curve Parameters	
Table 3-3	Protection Levels Based on Arsenic Species Sensitive Distribution	
	LIST OF FIGURES	
		Page No.
-	Terra Mine Site Location and Site Map	
г. оо	Assessment	
	Arsenic Concentrations Measured at Station T-9 from 2002 to 2013	
	Species Sensitive Distribution for the Protection of Aquatic Life - Arsenic Species Sensitive Distribution with Mean Concentrations (2007-2013)	
Figure 3-3	Measured in the Wetland (T9, MB)	3-7
_	Measured in Ho-Hum Lake (HHL) and Moose Bay at Wetland Outflow (T6)	
Figure 3-4	Arsenic Concentrations in Wetland Area (T-9) Relative to SSTL	3-9
Figure 3-5	Arsenic Concentrations in Moose Bay (T6) Relative to SSTL	3-9

1.0 INTRODUCTION

SENES Consultants (SENES) completed a human health and ecological risk assessment (HHERA) for exposure to contamination at the Terra Mine (SENES 2014), as commissioned by Public Works and Government Services Canada (PWGSC) on behalf of Aboriginal Affairs and Northern Development Canada (AANDC), in order to facilitate future decision making regarding the management of the site. The HHERA was originally completed in 2007 (SENES 2007) and was later updated in 2014 (SENES 2014) to incorporate new environmental site data that became available since the original assessment was completed. Risks in the HHERA were calculated for people that might hypothetically camp at the site over a short period of time (i.e., 8 days) and for a range of ecological receptors that would be present both in the terrestrial and aquatic environments at the site.

The HHERA concluded that there are minimal risks to humans and ecological populations from exposure to most constituents of potential concern (COPC) at the Terra Mine site. However, it was found that arsenic exposures result in potentially unacceptable risks to human health through the consumption of fish from Ho-Hum Lake and the consumption of moose roaming the site. Furthermore, the wetland area was found to contain elevated concentrations of some metals, and in particular arsenic, that may have potential adverse effects on individual muskrat inhabiting the wetland area. Little Ho-Hum Lake and Ho-Hum Lake were also identified as areas where potential adverse effects are occurring from exposure to metals in fish and/or benthic invertebrates.

In order to guide future remedial activities at the Terra Mine site, PWGSC and AANDC required that a site-specific target level (SSTL) be developed for arsenic, the main constituent of concern at the Terra Mine, for surface waters associated with the wetland where the highest arsenic concentrations are observed. The Wetland Working Group, which consists of AANDC, PWGSC and the Expert Advisors, agreed that developing an SSTL for arsenic in sediments was not justified at present as not enough information has been collected to fully understand the arsenic loadings in the wetland and implications of sediment remediation. In addition, the focus of the SSTL was the protection of aquatic life as the site is remote and the risk to human health is just hypothetical.

This report details the methodology, assumptions, and results for the development of an SSTL for arsenic in surface water for use in the remedial actions at the Terra Mine site. The SSTL for arsenic is applicable to the discharge from the wetland and not the wetland itself as the wetland is serving as a sink for arsenic removal.

1.1 SITE-SPECIFIC TARGET LEVEL

Site-specific target levels (SSTLs) represent risk-based acceptable levels of COPC (e.g., arsenic) in water (or other media) that are not expected to result in adverse effects to humans and ecological receptors, based on the assumed receptor characteristics and exposures from the site.

The aquatic SSTL for arsenic was developed using a species sensitive distribution (SSD) approach, which is the current approach used by the Canadian Council of Ministers of the Environment (CCME) for developing Water Quality Guidelines for the Protection of Aquatic Life. The SSTL was based on a given protection level along the SSD curve and is applied to the outlet of the Terra Mine wetland.

The assumptions made for the risk-based SSTL were intended to err on the side of caution and therefore they over-estimate intakes.

1.2 APPLICATION OF SSTLS

While remediation is intended to mitigate environmental risks, it also has the potential to result in negative impacts. For example, remediating elevated metals concentrations in areas that are vegetated would typically result in the destruction of the vegetation and associated habitat. Within the northern context, such impacts would be long lived (e.g., lasting multiple decades). During the remedial decision-making process it is therefore necessary to consider whether the net benefit of potential remedial options can be justified. By extension, the application of the SSTLs needs to be justified and optimized to ensure that the ensuing remedial actions do more good than harm. As discussed above, the SSTL for arsenic in water should be applied at the outlet of the wetland.

1.3 REPORT STRUCTURE

The report has been structured into several chapters, as follows:

Chapter 2 – Site Description: This chapter provides a description of the relevant features at the Terra Mine site.

Chapter 3 – Methodology: This chapter provides a description of the methodology for developing an aquatic SSTL for arsenic.

Chapter 4 – Conclusions: This chapter provides a summary of the aquatic SSTL developed for the Terra Mine site

Chapter 5 – References: This chapter provides references for literature used in the assessment.

2.0 SITE DESCRIPTION

The Terra Mine site is one of four abandoned underground silver mines that comprise the Silver Bear Mines, which are located approximately 400 km northwest of Yellowknife in the Northwest Territories, near the southeast point of Great Bear Lake. More specifically, the Terra Mine site is located on a peninsula, situated between the south shore of Rainy Lake (Camsell River) and the north shore of Ho-Hum Lake (see Figure 2-1). Drainage at the site occurs in a westerly direction towards the Camsell River and ultimately to Great Bear Lake; Little Ho-Hum Lake drains into Ho-Hum Lake, which in turn discharges naturally to Moose Bay through a wetland occurring between the two waterbodies. The mill site at the Terra Mine is located along the north shore of Ho-Hum Lake, which served as the tailings lake throughout the operation of the mill and contains submerged tailings and land-based tailings along its north shore. Coarse waste rock, which was used for the construction of the airstrip and embankments and in the laydown area around the mill, is distributed throughout the Terra Mine site.

In support of the Silver Bear Mines Remediation Plan (Rescan 2005) and the initial HHERA that was completed in 2007 (SENES 2007), soil, sediment (including sequential extraction data), aquatic vegetation (macrophyte), fish, and terrestrial vegetation (browse and forage) data were collected in 2004 and 2006 during site investigations. These data and supplemental environmental data that were collected from the site since 2007 were used in the 2014 update to the HHERA (SENES 2014). Supplemental data used in the HHERA included water quality data collected from 2007 to 2010; sediment data collected from the wetland in June and August 2009; and, sediment, fish and terrestrial vegetation (browse, forage and berries) data collected in June and August 2009 during baseline monitoring.

Surface water quality data have been routinely collected at the Terra Mine site since 2002 from the following key sampling stations: station T-2 at the outlet of Little Ho-Hum Lake; stations T-7, T-16 and T-8 in Ho-Hum Lake; station T-9 at the outlet of Ho-Hum Lake in the wetland; stations T-6/6B, T-10, and T-12 in Moose Bay (Camsell River); and, station T-4 at the Terra dock in Rainy Lake (Camsell River). Surface water data are available from 2002-2010 and 2013.

Since 2007, additional stations have been sampled in the wetland including MB-1/1A, MB-2, MB-3, MB-4, HH-1, HH-2 and HH-3. The locations of these stations are shown in Figure 2-2. Only the most recent water quality data from the last five sampling campaigns, which more accurately reflect current conditions at the site, were used in the development of the SSTL for arsenic. This dataset includes arsenic measurements collected at the aforementioned stations from 2007 to 2010 and in 2013. Mean arsenic data measured over the 2007 to 2013 period are summarized in Table 2-1.

Figures 2-3 and 2-4 provide the temporal trends in the measured data for arsenic for the entire dataset (2002 to 2013) at station T9, which as mentioned is the outlet of Ho-Hum Lake into the wetland and T6/6B, which is the outlet of the wetland into Moose Bay. As seen from Figure 2-3, there is no statistically significant temporal trend in the arsenic concentrations at station T-9 and the average concentration over the last seven years or so (2007-2013; Table 2-1) is approximately 59 μ g/L. Similarly, no trends are seen in the arsenic concentrations at the outlet of the wetland (station T-6; Figure 2-4) where the average concentration is around 44 μ g/L (2007-2013; Table 2-1).

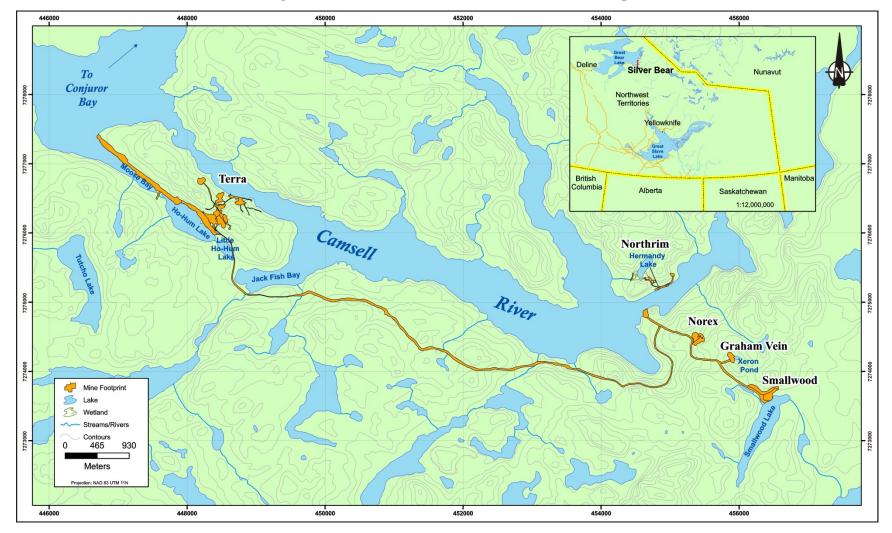


Figure 2-1 Terra Mine Site Location and Site Map

LEGEND: T-7 Water Quality Station Water Flow HH-1, HH-2, HH-3 ○ T-8 Ho-Hum Lake

Figure 2-2 Water Quality Sampling Stations at the Terra Mine Site Included in the Assessment

Source: modified from SENES (2007).

Table 2-1 Mean Arsenic Concentrations Measured in Surface Waters at the Terra Mine Site, 2007 to 2013

Arsenic Concentration	Little Ho-Hum Lake		Ho-Hum Lak	e	Wet	tland	Moose	Rainy Lake (Camsell River)		
(μg/L)	T-2	T-7*	T-16*	T-8*	T-9*	MB**	T-6/6B	T-10	T-12	T-4
	(n=8)	(n=12)	(n=12)	(n=12)	(n=12)	(n=25)	(n=12)	(n=12)	(n=12)	(n=7)
Arsenic	6.90	65.5	66.6	66.3	58.9	128	43.5	0. 73	0. 51	0. 23

Note:

^{*}includes data from surface depth only (A).

^{**}includes data from stations MB-1, MB-1A, MB-2, MB-3, MB-4, HH-1, HH-2, and HH-3 in the wetland.

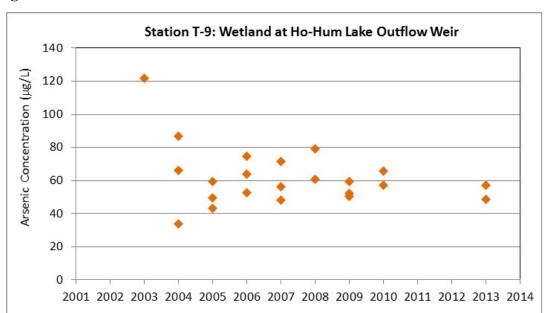
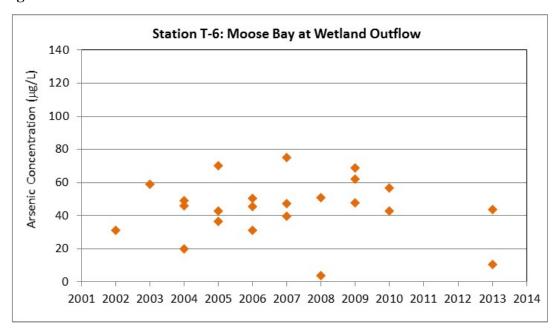


Figure 2-3 Arsenic Concentrations Measured at Station T-9 from 2002 to 2013

Figure 2-4 Arsenic Concentrations Measured at Station T-6 from 2002 to 2013



3.0 METHODOLOGY

This chapter provides a description of the methodology used for developing an SSTL for arsenic for surface waters associated with the wetland at the Terra Mine for the protection of aquatic life based on laboratory toxicity data, following a species sensitive distribution (SSD) approach.

Consideration was given to the drinking water guideline for the protection of human health. The drinking water guideline is based on the consumption of water every day for a lifetime. Given that the site is very remote, it was assumed that people, if they came to the site, would not drink water from the outlet of the wetland. Therefore, the arsenic SSTL in water has been developed for the protection of aquatic life.

3.1 SITE SPECIFIC TARGET LEVEL DEVELOPMENT FOR WATER

The SSTL for arsenic for surface waters at the outlet of the wetland at the Terra Mine site was developed for the protection of aquatic life based on laboratory toxicity data, following an SSD approach. The SSD is a statistical representation of the available aquatic toxicity data. In the SSD approach, data are screened for acceptable effects endpoints and all the screened data are incorporated in the determination of the SSD.

The Water Quality Task Group of the CCME has a protocol used to develop the Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME 2007a). The goals of the protocol include: (i) accounting for the unique properties of contaminants which influence their toxicity; and, (ii) incorporating the SSD method, which uses all available toxicity data (provided these data pass quality control criteria) in the development of the guideline. The SSD approach that is proposed for the Terra Mine wetland is therefore supported by the CCME protocol (CCME 2007b).

3.2 SPECIES SENSITIVE DISTRIBUTION APPROACH

The first step in the development of an SSD is to compile relevant aquatic toxicity data for the constituent. Data are generally compiled from the U.S. EPA AQUIRE database, available technical documents, and independent literature. The toxicity data available from these sources are then screened to meet the following criteria:

- Freshwater tests;
- Chronic:
- LCx, ECx, MATC endpoints only (where $x \ge 10$); and,
- Inorganic chemical form.

Toxicity tests completed in a saltwater environment, with lowest observable and no observable effect concentrations (LOEC/NOEC) reported, or with an organic form of the constituent are excluded from the dataset. Chronic tests were considered to be greater than 4 days (96 hours), and tests completed in shorter timeframes were also excluded.

Data points were also removed if the concentrations were reported as "less than", since an accurate number could not be determined. Result concentrations reported as "greater than" were conservatively assumed to be equal to the concentration. When multiple endpoints were reported for a specific species, LC/EC10 and LC/EC20 values were selected as the endpoints of choice where the data allowed and other endpoints were dropped from the dataset. If only LC/EC50 and MATC endpoints were available, then they were grouped together.

Following the compilation of the dataset, toxicity data were grouped by species. If only one toxicity value was available for a species, then that value was used as the toxicity value for the species; however, when multiple toxicity values were available for a species, then the geometric mean of the toxicity values was calculated and assumed to represent the toxicity value for that species.

The geometric mean was selected instead of the arithmetic mean in order to minimize the bias towards high test results. Species mean values were then ranked from lowest to highest and the percent of species affected was calculated using equation (1):

% Affected =
$$\frac{\text{Rank} - 0.5}{\text{Number of Species}} \times 100$$
 (1)

After manipulation of the dataset and ranking, the U.S. EPA SSD generator (2010) was then used to develop the curves for the SSDs. The U.S. EPA SSD generator applies a log-probit distribution to the dataset to develop the SSD curve. In the development of SSD curves for long term exposure, Environment Canada prefers the use of concentrations that affect 10% of the population as they are considered to be "no-effects" endpoints. Concentrations that affect 20% of the population are also used and are considered to be "low effects endpoints". For the majority of the toxicity information for the various aquatic species exposed to arsenic, only lethal concentrations that affect 50% of the population (i.e., LC50 values) were available in the literature. These concentrations were used to derive the SSD curves.

3.3 Species Sensitivity Distribution for Arsenic

The complete dataset for arsenic is provided in Appendix A and indicates which data points were included in the development of the SSD. Data from U.S. EPA AQUIRE were used as the basis of the dataset, with additional data obtained from a literature search. The Vocke *et al.* (1980) test

result for *Scenedesmus acutus* was also considered in the development of the SSD for arsenic, since this test is the basis of the CCME (2001) arsenic water quality guideline. The aquatic toxicity data for arsenic were grouped by species (Table 3-1) and the 19 species were ranked.

The SSD curve presented in Figure 3-1 was developed using the U.S. EPA SSD generator (2010). There was a good fit for the data ($r^2 = 0.951$). Additional parameters describing the curve can be found in Table 3-2.

Table 3-1 Summary of Data for Development of SSD for Arsenic Aquatic Toxicity

Species	Common Name	Concentration (µg/L)	Endpoint	Geometric Mean (µg/L)	Species Rank	% Affected
Gastrophryne carolinensis	Eastern Narrow- Mouthed Toad	40	LC50	40	1	5%
Scenedesmus acutus var. acutus	Green Algae	48	EC50	48	2	11%
Gammarus fossarum	Amphipod	200	LC50	200	3	16%
Hyalella azteca	Scud	483 494 581	LC50 LC50 LC50	518	4	21%
Oncorhynchus mykiss	Rainbow Trout	540 540	LC50 LC50	540	5	26%
Ceriodaphnia dubia	Water Flea	1140 1259	MATC EC50	1,198	6	32%
Daphnia magna	Water Flea	1300	IC10	1,300	7	37%
Physa fontinalis	Snail	2200	LC50	2,200	8	42%
Asellus aquaticus	Isopod	2310	LC50	2,310	9	47%
Niphargus rhenorhodanensis	Amphipod	3970	LC50	3,970	10	53%
Ambystoma opacum	Marbled Salamander	4450	LC50	4,450	11	58%
Coregonus hoyi	Bloater	5100 11000	LC50 LC50	7,490	12	63%

Table 3-1 Summary of Data for Development of SSD for Arsenic Aquatic Toxicity (Cont'd)

Species	Common Name	Concentration (µg/L)	Endpoint	Geometric Mean (µg/L)	Species Rank	% Affected
		1500	MATC			
		1500	MATC			
	Fathead	7079	EC50			
Pimephales promelas	Minnow	11000	MATC	7,779	13	68%
	Milliow	18200	LC50			
		21700	LC50			
		24900	LC50			
		490	LC50			
C	Goldfish	32100	LC50	11 717	1.4	7.40/
Carassius auratus	Goldiish	33100	LC50	11,717	14	74%
		36200	LC50			
			Chronic			
		4900	Toxicity			
			Threshold			
		10800	LC50			
Salmo gairdneri	Rainbow Trout	12600	LC50	12,994	15	79%
-		13300	LC50			
		13900	LC50			
		18500	LC50			
		27430	LC50			
Jordanella floridae	Flagfish	14200	EC50	14,200	16	84%
		18000	LC50			
Salvelinus fontinalis	Brook Trout	19400	LC50	19,115	17	89%
		20000	LC50			
Micropterus salmoides	Largemouth Bass	42100	LC50	42,100	18	95%
		31600	LC50			
		37000	LC50	1		
Lepomis	D1	42200	LC50	16.255	10	100%
macrochirus	Bluegill	47800	LC50	46,255	19	100%
		61700	LC50	1		
		67300	LC50	1		

Table 3-2 Arsenic SSD Curve Parameters

Pa	rameters
Slope	1.081
Intercept	1.310
\mathbb{R}^2	0.951
GrandMean	3.413
SumSQ	235.789
CSSQ	14.464
MSE	0.051
Tcrit	1.740
N	19
df	17

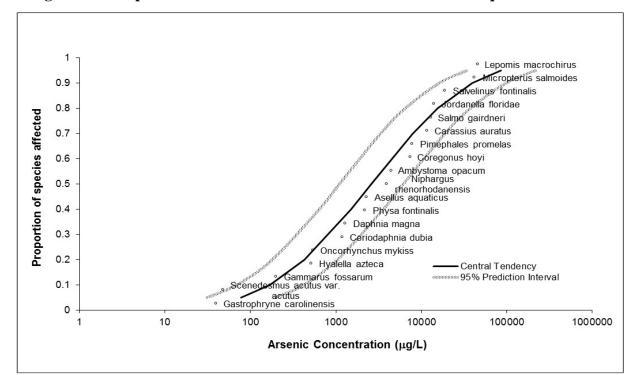


Figure 3-1 Species Sensitive Distribution for the Protection of Aquatic Life - Arsenic

3.4 APPLICATION OF SPECIES SENSITIVE DISTRIBUTION CURVE TO WETLAND

From Table 3-1, it can be seen that the available aquatic toxicity data for arsenic are predominantly LC50 values and this needs to be kept in mind when applying the SSD curve to the development of an SSTL.

There are two ways in which the SSD curve can be applied to the development of an SSTL for the outlet of the wetland: 1) using protection levels and, 2) comparing measured arsenic concentrations to the SSD curve. These two approaches are described below.

3.4.1 Protection Levels

The CCME approach allows for the use of different protection levels in site-specific applications. The CCME generally selects the concentration associated with the protection of 95% of the species (i.e., the 5% level of the SSD) when following the SSD approach for the development of water quality guidelines. This is widely considered a conservative threshold for effects to aquatic ecosystems. Due to the fact that LC50 endpoints were used for the development of the arsenic SSD, this may also be the most appropriate endpoint to use for the outlet of the wetland. However, a risk management decision can be made by the custodian whereby a different protection level is selected. Table 3-3 summarizes arsenic concentrations that are protective of

80%, 90%, and 95% of the species, based on the central tendency and upper and lower prediction intervals of the SSD curve. The specific species from the SSD potentially affected at each protection level for the central tendency are also summarized. As seen from the table, at both the 95% and 90% levels, the potential species that are affected are *Gastrophryne carolinensis* (narrow-mouth toad), *Scenedesmus acutus* (alga). The Northwest Territories is outside the expected range of the narrow-mouth toad (*Gastrophryne carolinensis*) and the 95% protection limit is considered to be protective of the aquatic ecosystem.

Concentration (µg/L) **Protection** Lower Upper **Species Affected at Central Tendency** Central Level Prediction Prediction **Tendency Interval Interval** 95% 196 Gastrophryne carolinensis, Scenedesmus acutus 78 31 90% 169 69 414 Gastrophryne carolinensis, Scenedesmus acutus Gastrophryne carolinensis, Scenedesmus acutus, 80% 431 180 1035 Gammarus fossarum

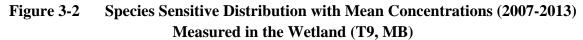
Table 3-3 Protection Levels Based on Arsenic Species Sensitive Distribution

3.4.2 Measured Arsenic Concentrations

The second approach is to look at the measured arsenic concentrations from various sampling stations within and in the vicinity of the wetland and then determine where these concentrations lie on the SSD curve. Then a risk management decision can be made as to whether the species that are not protected are considered to be important to the aquatic ecosystem in the wetland.

Figure 3-2 provides an example of the SSD curve with mean arsenic concentrations measured at various stations within the wetland (T-9 and MB; see Figure 2-2) also shown on the curve. The arsenic concentrations were 59 μ g/L at station T-9 and 128 μ g/L at station MB (see Table 2-1). Figure 3-3 presents the curve with measured arsenic concentrations in Ho-Hum Lake (mean of stations T-7, T-16 and T-8) upstream of the wetland and Moose Bay just downstream of the wetland (T-6). The arsenic concentrations for Ho-Hum Lake (HHL) and Moose Bay (T-6) were 66 μ g/L and 44 μ g/L, respectively.

As seen from these figures, the potentially affected species are the narrow-mouth toad (*Gastrophryne carolinensis*) and an alga (*Scenedesmus acutus*), which are the same species that are affected when the 95% protection level is selected.



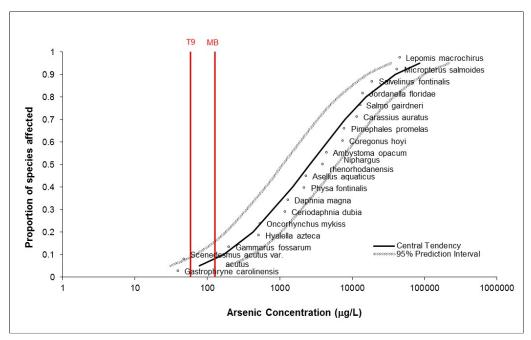
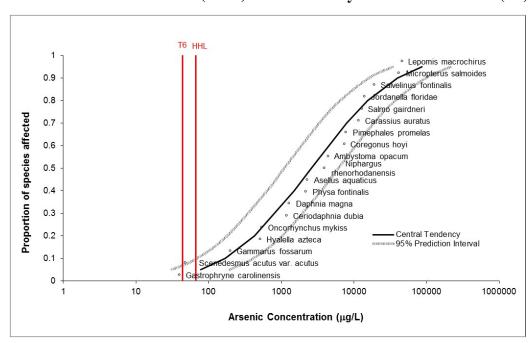


Figure 3-3 Species Sensitive Distribution with Mean Concentrations (2007-2013) Measured in Ho-Hum Lake (HHL) and Moose Bay at Wetland Outflow (T6)



3.5 APPLICATION OF THE ARSENIC SSTL FOR THE WETLAND

Based on the outcome of the two methods discussed above, it is recommended that the arsenic SSTL for the wetland at the Terra Mine site be selected as the central tendency of the arsenic SSD curve at the 95% protection level, which corresponds to a value of 78 μ g/L. This value is considered to be protective of the aquatic species present in the aquatic environment at the Terra Mine site and should be applied to the outlet of the wetland into Moose Bay. Application of the SSTL to the wetland itself is not recommended as it is understood that the wetland is serving as a function to remove arsenic.

To provide a context for the derivation of the SSTL, the background related to the development of the CCME guideline is provided. The water quality guideline for arsenic for the protection of freshwater life is 5 μ g/L, which was derived by multiplying the chronic 14-d EC50 for growth endpoints of approximately 50 μ g/L (Vocke *et al.* 1980) for the most sensitive organism to arsenic, the alga *Scenedesmus acutus* by a safety factor of 0.1. This datum point was considered in the development of the SSD. The proposed SSTL does not protect this particular species but is protective of 95% of the species, which is considered to represent an aquatic ecosystem.

Figures 3-4 and 3-5 show a comparison between the proposed SSTL and the measured data at T-9 (inlet to wetland) and T-6 (outlet of wetland). As seen from Figure 3-4, although historically arsenic concentrations measured in June 2003 and 2004 exceeded the SSTL, with the exception of one sampling event since then in August 2008 (79 μ g/L), arsenic concentrations at the inlet to the wetland have been below the SSTL concentration of 78 μ g/L. At the outlet of the wetland (Figure 3-5), all arsenic concentrations measured since 2002 have been below the SSTL.

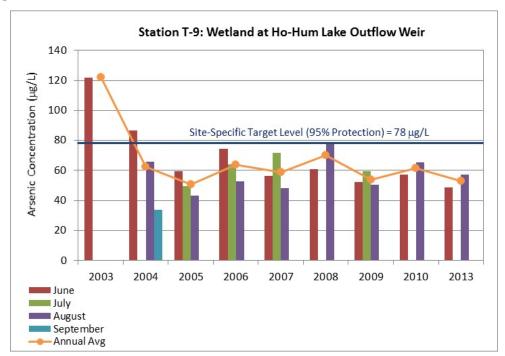
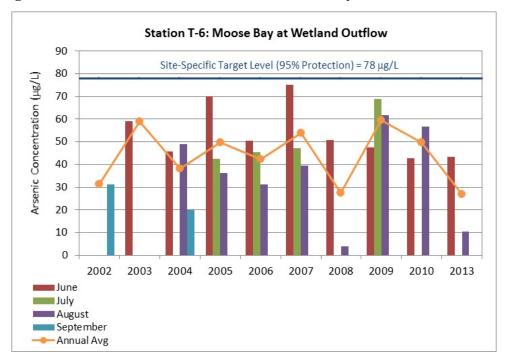


Figure 3-4 Arsenic Concentrations in Wetland Area (T-9) Relative to SSTL

Figure 3-5 Arsenic Concentrations in Moose Bay (T6) Relative to SSTL



4.0 CONCLUSIONS

Sampling programs have been conducted in the aquatic environment at the Terra Mine site since 2002. Levels of arsenic are elevated over CCME guidelines and numerous studies have been carried out to characterize the arsenic loadings in Ho-Hum Lake, the wetland and Moose Bay. There is a need to establish an SSTL for arsenic in water at the outlet of the wetland. The proposed value of $78 \mu g/L$ for arsenic in water has been developed using an SSD approach and is representative of the protection of 95% of the aquatic species.

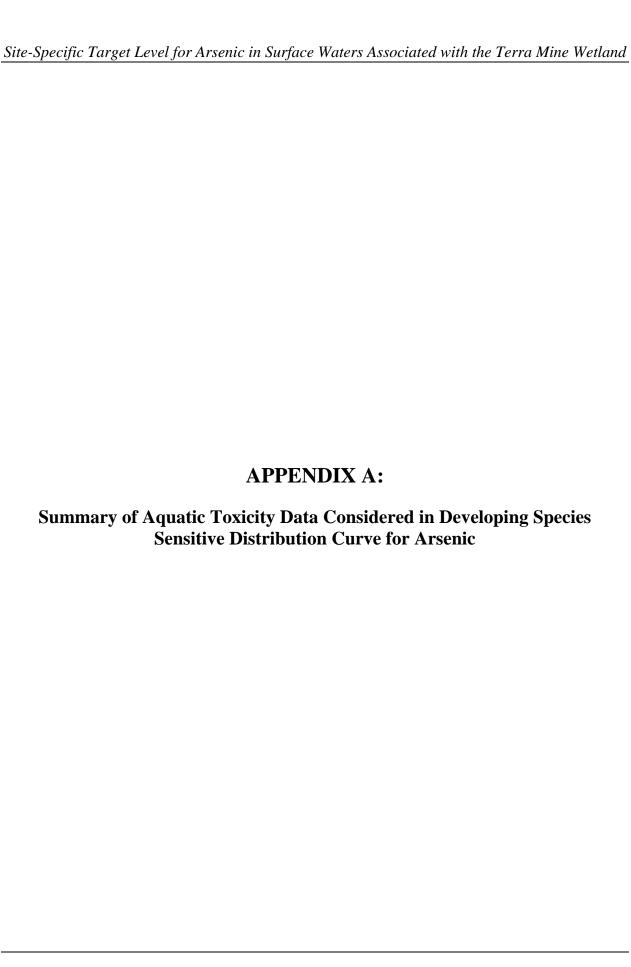
It is recommended that the SSTL be applied to average annual measurements at the outlet of the wetland (station T-6) as follows:

- Arsenic levels below a value of 78 μg/L are considered protective of all aquatic species and no action is required beyond routine monitoring; and,
- Arsenic levels above 78 μg/L suggest that follow-up investigations of sediments, benthic community, and fish (which do not migrate and have limited mobility) be initiated. Sampling may be warranted between stations T-6 and T-10 to determine whether adverse effects on aquatic biota populations are being observed in Moose Bay.

It should be noted that over the past number of years, the arsenic concentrations at the inlet and outlet of the wetland have essentially measured below the SSTL.

5.0 REFERENCES

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Part	CA	45				Organism	Exposur I	Chemica Medi	Test Observ Locatio Duratio	red Observed on Duration	,	ren	Effect	Conc 1 Con	nc 1 Mean Conc 1	pH pH pH	Hardnes Har	dnes Hard	ines Hardness Referenc				Publication
March Marc	Chemical Nu	amber 0	Chemical Name	Species Scientific Name	Species Common Name	Lifestage	e Type A	Analysis Type	n Mean	Units	Endpoint d	Effect	Measurement	Type (upt) (up)	(L) Units (us/L)	Mean Min Max	a Mean a M	n s Ma	x Units e Number	Author	Tide	Source	Year Comment
Part	Arsenic 1	303282 /	Arsenic pentoxide	Morone saxutila	Striped Bass		S M	A FW	LAB	4 d	LCSO	IR mortality	mortality	_	30500 upl.		475		mpt CaCO3 11334		Sensitivity of Young Steped Bass to Organic and Inorganic Confaminants in Fresh and Saline Waters.		1985 test duration
	Americ 1:	303282 /	Arsenic pentoxide	Morone assertia	Striped Bass			A PW	LAB	4 4	LCSO B	R mortality	mortality	-	40500 upl.		285		-1 C-CO1 11334	Palawaki D. J.B. Hunn, and F.J. Davier	Sensitivity of Young Street Beas to Organic and Inomatic Conferences in Fresh and Saline Waters Provided by Avenue Street Beas to Organic and Inomatic Conferences in Fresh and Saline Waters	Trans. Am. Fish. Soc. 114(5): 748-753	1985 test duration
Martine	America A	202202	According a constraints	Complement and in	Bainbary Toront			4 69	148		1000	D modelin	made the	į.	2000		200		-1 0-000 11334	Palmanki D. J.B. Hann, and F.J. Daver	Sensitivity of Years Stringer Base to Commission and Incommission Continues in French and Saline Waters	Trans des Fish See 114/9: 748-751	1005 had denting
March Marc	Americ 1:	303339 A	Arsenic trisulfide (As253)	Pimeohalea prometas	Fathead Minrow		s M	A FW	LAB	2 d	LCSO b	IR mortality	mortality	T 392-	400° ual			40	48 mg/L CaCO3 875	Curtis M.W., T.L. Copeland, and C.H. Ward	Acute Toxicity of 12 Industrial Chemicals to Freshwater and Saltwater Organisms	Water Res. 13(2): 137-141	1979 heat duration
March Marc	Americ 1:	303339 A	Arsenic trisulfide (As253)	Pimephales prometes	Fathead Minrow		s м	A FW	LAB	4 d	LC50	IR mortality	mortality	T 8230	00° upt			40	48 mol. CaCO3 875	Curtis M.W., T.L. Copeland, and C.H. Ward	Acute Toxicity of 12 Industrial Chemicals to Freshwater and Saltwater Ossanisms	Water Res. 13/2): 137-141	1979 test duration
March Marc	Americ 1	327533 /	Arsenic oxide	Daphnia magna	Water Flea	neonate	R M	A FW	LAB	21 d	LC50	9C mortality	mortality	D	5800 upl.		225		mel CaCO1 45212	Enserink,E.L., J.L. Mass-Diepeveen, and C.J. Van Leeuwen	Combined Effects of Metals: An Ecotoxicological Evaluation	Water Res. 25(6): 672-687	1001 Ann in feature of IC10
	Americ 1	327533	Arsenic oxide	Coregonus havi	Sicoter	fry	R M	A FW	LAB	14 d	LC50	IR mortality	mortality	т	5100 ug/L			40			Toxicity of Assenic and PCBs to Fiv of Despeyater Ciscoes (Coreconus)	Bull. Environ. Contam. Teolool 24/41: 527-534	1980
Mart	Americ 1	327533 /	Arsenic oxide	Coregonus havi	Boster	try	R M	A FW	LAB	5 d	LCSO B	R mortality	mortality	т	11000 ug/L			40	46 mol CaCO3 457		Toxicity of Assenic and PCBs to Fiv of Despenter Ciscoes (Coresponse)	Bull. Environ. Contern. Toxicol 24/41: 527-534	1980
Mart	Americ 1	327533 /	Arsenic oxide	Coregonus havi	Dicater	for	s м	A FW	LAB	4 d	LC50	R mortality	mortality	T 1300	00° upt			40	45 mm3 CuCO3 457		Toxicity of Assenic and PCBs to Fiv of Descriptor Ciscoss (Conscious)	Bull. Erryleon. Contam. Toxicol 24/41: 527-534	10/60 less rhamition.
No. Column Colu	Americ 1:	327533	Arsenic oxide	Coregonus hayi	Blooker	fry	s M	A FW	LAB	4 d	LC50	R mortality	mortality	T 2000	00' nàt			40	48 mol CaCO3 457	Passino D.R.M., and J.M. Kramer	Toxicity of Assenic and PCBs to Fiv of Despeyater Ciscoes (Coreconus)	Bull Environ, Contam Toxicol 24(4): 527-534	1980 test duration
Mart	Americ 1	327533 /	Arsenic celde	Oncorhynchus mykiss	Rainbow Trout	mix of lifestages	F M	A FW	LAB	5 d	LC50	IR mortality	mortality	т	13300 upl.	8.03			NR 6329	Dison D.G., and J.B. Sprague	Acclimation-induced Changes in Toxicity of Assenic and Cyanide to Rainbow Trout. Salmo gairdneri Richardson	J. Fish Biol 18(5): 579-589	1981
Mart	Arsenic 1:	327533 A	Arsenic ceide	Oncorhynchus mykias	Rainbow Trout	-	F M	A FW	LAB	5 d	LC50 h	IR mortality	montality	т	10800 ugl.				NR 395		The Impact of Temperature on the Acute Toxicity of Assense and Assense to Rainbow Trout (Salmo quirdnes)		1696
Mart	Americ 1	327533 /	Arsenic oxide	Oncorhynchus mykiss	Rainbow Trout		F M	A PW	LAB	6 d	LCS0 b	R mortality	mortality	Ī	12600 upl.				NR 395		The Impact of Temperature on the Acute Toxicity of Ansenate and Ansenite to Rainbow Trout (Salmo gairdnes)	Ecoloxicol, Environ. Sat.17(1): 86-93	1989
	Americ 1:	327533 /	Arsenic oxide	Tanytanus desirale	Michael	instar		A PW	LAB	2 d	LCSO B	R mortality	modality	T 357	00' upl	72 77	46.6	44.6	47.5 mol CaCO3 10417		Toxicity of Salected Priority Poliutants to Visious Assettic Crossmans Toxicity of Salected Poliutant In Visious Assettic Crossmans	Ecolosical Environ. Sal 714: 400-409	1983 test duration
Manual M	Americ 1	327533 4	Arsenic colde	Potentian reparation and involves an	Snel	artist	, M	4 FW	LAB	7.4	ECSO E	OC introduction	n implification	T	34500 upl		723		NR 7583	Golding,L.A., M.H. Timperley, and C.W. Evens	Non-lethal Responses of the Freshwater Snail Potamorynous antipodarum to Dissolved Anseric	Environ, Montt. Assess.47(3): 239-254	1997 heat duration
March Marc	Americ 1:	327533 /	Arsenic oxide	Polamopyrous antipodarum	Snal	adult	r M	A FW	LAB	3 d	ECSO I	VC Intoxication	n imphilization	т	24200 uat.					Goldina LA MH Timpeday and CW	Non-lethal Responses of the Freshwater Snail Potamopurous antipodarum to Dissolved Americ	Environ, Monit, Assess, 47(3): 239-254	1997 test duration
Mark	Americ 1:	327533 /	Arsenic oxide	Potamopyrgus antipodarum	Snat	adult	F M	a FW	LAB	4 d	ECSO II	VC intoxication	n irrobilization	т	19400 ug/L					Golding,L.A., M.H. Timperley, and C.W.	Non-lethal Responses of the Freshwater Snall Potamopinous antipodarum to Dissolved Americ	Environ Monit Assess 47(3): 239-254	1997 test duration
Mathematical Math	Americ 1:	327533 A	Arsenic oxide	Poterropyrous antipodarum	Snat	adult	r M	A FW	LAB	4 d	EC50	VC intoxicatio	n imphilization	т	9507 upl				NR 7583	Evens	Non-lethal Responses of the Freshwiter Snail Polamopyrgus antipodarum to Dissolved Arsenic	Environ. Monit. Assess.47(3): 239-254	1997 test duration
Mathematical Math	Americ 7	440382	Arsenic	Hyalella auteca	Sout	young organism	s м	A FW	LAB	7 d	LC50	C mortality	mortality	т.	494 ugl	7.39 64 85	18"			Borgmann,U., Y. Coullard, P. Doyle, and D.G. Doon	Toxicity of Sixty-Three Metals and Metallicids to Hushilla sateca at Two Levels of Water Hardness	Environ, Toxical, Chem 24(3): 641-652	2005
Mathematical Math	Americ 7	631892	Arsenic acid (H3AsO4), Sodium salt	Morone assettis	Striped Bass	prolarva	F M	A FW	LAB	4 d	LC50 II	VC mortality	mortality	т	18690 ug/L	7.5 7.7			NR 18109		Access and Current Effects of Waterborne Assents and Selevium on the Early Life Stages of Stiped Bass (Morone assettles)	Hopkins University, Laurel, MD:209 p.	1985 test duration
Part	Americ 7	631692	Arsenic acid (H3AsO4). Sodium salt	Morone assorbia	Striped Bass	lanca	r M	A FW	LAB	4 d	LC50	VC mortality	mortality	т	7280 ugl.	7.5 7.7			NR 18109		saxems)		1985 heat duration
Part	Americ 7	631892 A	Arsenic acid (H3AsO4). Sodium salt	Oncorhynchus mykiss	Rainbow Trout	young of year	F M	A FW	LAB	4 d	LCSO I	9C mortality	mortality	T	10800 ugl.	64 83			NR 861			Bull Environ, Contam. Toxicol 17/11: 65-73	1977 test duration
Mathematical Math	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Bosmina longinatria	Water Flea	neonate	S M	A FW	LAB	4 d	ECSO D	IR intosicatio	n implifution	T	850 upl.				mol. CaCO3 10558			Bull. Emiron. Contam. Toxicol 33(3): 325-329	1984 test duration
State	Americ 7	778430	Arsenic acid (H3AsO4). Disodium salt	Daphnia pulex	Water Flea		S M	A FW	LAB	2 d	EC50 6	IR intosicatio	n irrobilization	T	49600 upl.	6.6	120		mall CaCO3 10558	Passino, D.R.M., and A.J. Novak Borgmann, U., Y. Coullard, P. Doyle, and		Bull, Environ, Contain, Toxicol 23(3): 325-329	1984 last duration
Mathematical Control of the contro	Americ 7	778430 4	Arsenic acid (H3AsO4), Disodium salt	Hyalella autoca	Sout	young organism	S M	A FW	LAB	7 d	LCSO II	WC mortality	modality		483 upt.	5.21 7.2 5.5	124"		mpl. 80935	D.G. Dison Borgmann,U., Y. Coullard, P. Doyle, and		Environ Toxical Chem 24(3): 541-552	2005
Mathematical Control of the contro	Americ 7	//8430 /	Arsenic acid (H3AsO4), Disodium salt	riyanın adıca	Manage	young organism	. M	. IV	LAB	eeer d	ECRO:	mortality	mortality		581 lugt	(.30 64 85	10'		mpl 80935	Grinden I	Toxicity to Rainbow Trout and Minnows of Some Substances Known to be Present in Waste Water Discharged to	Erroren, 1 (2000), Uhem 24(3): 541-552	2005
Martin M	Americ 7	778430	Arsenic acid (H3As/S4) Disortion and	Pimenhales promise	Fathead Morrow		R	A FW	LAB	1 d	LC50	VC mortalia-	mortal?*	1	20000 uat.	8.11 7.91 8.41	140" 139		mal Cacon Zana	Bun K.J.	The Relative Toxicity of Waterborne Incrgaric Contaminants to the Rio Grande Silvery Minnow (Hybograthus smanus) and Fathead Minnow (Pimechales prometas) in a Water Quality Sensitation that in the Rio Grande, Nov. Manu	U.S.Geol.Surv., Columbia Environ.Res.Ctr., Yankton Field Res.Str., Yankton, SD:75 p.	2002 test densine
Part	Americ 7	775430	Arsenic acid (H3AgO4), Disodum with	Pimenhales progreties	Fathead Money		R M	A FW	LAB	2 d	LC50	9C mortality	mortality	1	19100 ppt	81: Z2 84:	140' 130	1400	mol CaCO1 77978	nav i	The Relative Toxicity of Waterborne Inorganic Contaminants to the Rio Grande Silvery Minnow (Hybograshus amarus)	U.S.Geol.Surv., Columbia Environ.Res.Ctr., Yankton Field Res.Stn., Yankton, SD:75 p.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodum salt	Pimephales promelas	Fathead Minrow		B M	A FW	LAB	D C	LC50	9C mortality	mortality	т	19100 uat.	5.11 7.91 5.41	140" 139	140*	mol CaCO1 77828	Buhl K.J.	The Relative Toxicity of Waterborne horganic Contaminants to the Rio Grande Silvery Minnow (Hybograthus amarus) and Fathead Minnow (Pinnochales oromelas) in a Water Quality Simulating that in the Rio Grande. New Mexico	U.S. Geol. Surv., Columbia Environ Res. Ctr., Yankton Field Res. Stn., Yankton, SD:75 o.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Pimeohalea prometas	Fathead Minrow		R M	A FW	LAB	4 0	LC50	9C mortality	mortality	т	277000 cm2		4400	540	mol. CaCO3 77828	Bun KJ.	The Relative Toxicity of Waterborne horganic Contaminants to the Rio Grande Silvery Minnow (Hybograthus amarus) and Pathead Minnow (Pimechalise prometes) in a Water Quality Simulating that in the Rio Grande, New Mexico	U.S. Geol. Surv., Columbia Environ Res. Ctr., Yankton Field Res. Stn., Yankton, SD-75 o.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Hybograthus amarus	Rio Grande Silvery Minnow		R M	A FW	LAB	1 d	EC50	9C mortality	mortality	т	41500 ug/L	8.1" 7.9" 8.4"	140" 139	540	mol. CaCO3 77828	Book I	The Relative Toxicity of Waterborne Inorganic Contaminants to the Rio Grande Silvery Minnow (Hybograthus amarus) and Eatheart Minnow (Pirmerhales normaliss) in a Water Quality Simulating that in the Bin Grande New Mexico.	U.S. Geol. Surv., Columbia Environ Res. Ctr., Yankton Field Res. Stn., Yankton, 50:75 p.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodum salt	Hybograthus amarus	Rio Grande Silvery Minnow		R M	A FW	LAB	1 d	LC50	9C mortality	mortality	т	41500 ugl	8.1" 7.9" 8.4"	140" 139	140*	mol CaCO1 77828	Buh K.J.	The Relative Toxicity of Waterborne Inorganic Contaminants to the Rio Grande Silvery Minnow (Hybograshus amarus) and Fathead Minnow (Pirechales oromelas) in a Water Quality Simulating that in the Rio Grande. New Mexico	U.S. Geol. Surv., Columbia Environ Res. Ctr., Yankton Field Res. Stn., Yankton, 50:75 p.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodum salt	Hybograthus amerus	Rio Grande Silvery Minnow		R M	A FW	LAB	2 d	LC50	VC mortality	mortality	т	39500 upl.	8.1" 7.9" 8.4"	140" 139	540*	mol CaCO3 77828	Buh K.J.	The Relative Toxicity of Waterborne Inorganic Contaminants to the Rio Grande Silvery Minnow (Hybograthus amarus) and Fathead Minnow (Pimechales prometes) in a Water Quality Simulating that in the Rio Grande. New Mexico	U.S.Geol. Surv., Columbia Environ Res.Ctr., Yankton Field Res.Stn., Yankton, SD:75 g.	2002 test duration
	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Hybograthus amerus			R M	A FW	LAB	3 d	LCS0 II	9C mortality	mortality	т	38300 upt.	8.1" 7.9" 8.4"	140" 139	140*	mol CaCO3 77828	Buh.K.J.	The Relative Toxicity of Waterborne Incepanic Contaminants to the Ros Grande Silvery Minnow (hybograthus amarus) and Flathead Minnow (Preschales promets) in a Water Quality Simulating that in the Ros Grande. New Mexico Toxicity Statistics Variation Valuation (Contaminants) in the Ros Grande New Mexico	U.S. Geol. Surv., Columbia Environ Res. Ctr., Yankton Field Res. Stn., Yankton, SD-75 p.	2002 test duration
Martin M	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Hybograthus amarus	Rio Grande Silvery Minnow		R M	A FW	LAB	4 d	LC50	VC mortality	mortality	т	34300 ugl.	8.1" 7.9" 8.4"	140" 139	140*	mol. CaCO3 77828	Buhl K.J.	I he reserve I coorly of watercome incrganic Contaminants to the roc unable laively winner (hypogramus amarta) and Fathead Minnow (Personales prometas) in a Water Quality Simulating that in the Rio Grande. New Mexico	SD:75 a.	2002 test duration
March Marc	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodum salt	Philodina rossola	Rottler	adult	S M	A FW	LAB	1 d	LC50	R mortality	mortality	т	150000 upl.			-	NR 2236	Schwefer,E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assenses to the Rotifer, Philodina roseols	Water Res.7(12): 1781-1790	1973 test duration
Martin M	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Philodina rossola	Rotter	adult	8 M	A FW	LAB	1 d	LC50	IR mortality	mortality	T	40000 upl.				NR 2236	Schaefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assensite to the Rotifer. Philodina roseols	Water Res.7(12): 1761-1790	1973 test duration
Column C	Arsenic 7	7778430 /	Arsenic acid (H3AsO4), Disodum salt	Philodra roseola	Rotter	adult	S M	A FW	LAB	1 d	LCS0 N	IR mortality	monality	т	55000 ug/L				NR 2235		Temperature and the Toxicity of Chromate and Assenste to the Rotifer. Philodina roseots		1973 test duration
Mart	Americ 7	7778430 /	Arsenic acid (HSAsO4), Disodum self	Philoden rossols	Rotter	adult		A PW	LAB	1 4	LCSO B	R mortality	modality	-	82000 upl.				NR 2236		I emperature and the I cooky of Chromate and Arsenses to the Roster, Prisodna roseous		1973 test duration
Second Control Process	Americ 7	775430 4	Arsenic acid (HTAs/CA) Disortium self	Philodra marcia	Broller	metal)	s M	4 FW	LAB	1.4	1050	IR mortality	modulity		25000 upt				NB 2236		Temperature and the Trainty of Chromate and Assertate to the Bridge. Distriction resents		1973 test dentition
Mary Column Col	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Philodina rossola	Rotter	adult	s M	A FW	LAB	2 d	LC50	IR mortality	mortality	т	21000 uat.				NR 2236		Temperature and the Toxicity of Chromate and America to the Rotifer, Philodina roseols		1973 test duration
The content of the	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Philodina rossola	Robler	adult	s M	A FW	LAB	2 d	LC50	R mortality	mortality	т	25000 ual.				NR 2236	Schaefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Asserute to the Rotifer, Philodina roseols	Water Res. 7(12): 1781-1790	1973 test duration
The content of the	Arsenic 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Philodina rossola	Rotter	adult	s M	A FW	LAB	2 d	LC50 N	IR mortality	mortality	т	32000 ugt.				NR 2236	Schwefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assenate to the Rotifer. Philodina roseols	Water Res.7(12): 1761-1790	1973 test duration
The content of the	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodum salt	Philodina rossola	Rotter	adult	s м	A FW	LAB	2 d	LC50	R mortality	mortality	т	44000 ug/L				NR 2236	Schaefer,E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assensite to the Rotifer, Philodina roseols	Water Res.7(12): 1781-1790	1973 test duration
March Marc	Americ 7	778430	Arsenic acid (H3AsO4), Disodium salt	Philodina roseola	Rotter	adult	s M	A FW	LAB	2 d	LCSO N	IR mortality	mortality	т	57000 upl.				NR 2236	Schweler E.D. and W.O. Pipes	Temperature and the Toxicity of Chromate and Anamate to the Rotifer, Philodina roseola	Water Res. 7/12:: 1781-1790	1973 test duration
Mart 1775	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Philodina rossola	Rotter	adult	s M	A FW	LAB	2 d	LC50	IR mortality	mortality	т	78000 ugl.				NR 2236	Schweler E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and America to the Rotifer, Philodina roseols	Water Res. 7(12): 1761-1792	1973 test duration
Mart 1775	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Philodina rossola	Rotter	adult	s M	A FW	LAB	3 d	LC50	IR mortality	mortality	т	11000 upt.				NR 2236	Schsefer,E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assenses to the Rotifer, Philodina roseols	Water Res.7(12): 1781-1790	1973 test duration
Mart 1775	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Philodina rossola	Rotter	adult	s M	A FW	LAB	3 d	LC50	IR mortality	mortality	T	16000 ug/L				NR 2236	Schaefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assense to the Rotifer, Philodina roseols	Water Res 7(12): 1761-1790	1973 test duration
Mart 1775	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Philodina ressola	Rottler	adult	S M	A FW	LAB	3 d	LCSO N	IR mortality	mortality	T	21000 upl.				NR 2236	Schaefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and America to the Rotifer, Philodina roseole	Water Res. 7/12): 1761-1790	1973 fest duration
March 1775 Annual and Displace Designation Desi	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Philodina rossola	Rotter	adult	S M	FW.	LAB	3 d	LCSO N	IR mortality	mortality	T	25000 upl.				NR 2236		Temperature and the Toxichy of Chromate and Assensite to the Rotifer, Philodina roseols	Water Res.7(12): 1781-1790	107% last dentine
April Apri	Americ 7	r78430 /	Assessing and MEAACH). Disordum self-	emodina masola	Rester.	adult	. M	, PW	LAB	3 8	1000	mortality	mortelly		25000 topl.				NR 2236	Potranter E.D., and W.O. Pipes	I emperature and the Totichy of Chromate and Assensite to the Rotter, Philodean rossols	Marie Res 7(12): 1781-1790	1973 had duration
Part	Americ 7	778474	Arranic and Other Care Const.	Philoden marris	Britar	medit metall	s	4 60	Lab	4 4	1050	IR montally	motelle	,	35000 upt				MR ZZX	Schaeler E.D., and W.O. Pines	Temperature and the Toxicity of Chromate and Assense to the Breiter Philodean manufa	Water Res.7(12): 1761-1790	1973 had during
March 1975 March 1975	Americ 7	778430	Arsenic acid (H3AsO4), Disodrem wall	Philodra rossola	Rotter	adult	s	A FW	LAB	4 d	LC50	IR mortale-	mortality	T	18000 upt				NR 2236	Schweler E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Assensite to the Rotifer, Philodina roseola	Water Res.7(12): 1761-1790	1973 test duration
March 1975 March 1975	Americ 7	778430	Arsenic acid (H3AsO4), Disodum self	Philodina rossola	Roller	adult	s M	/ FW	LAB	4 d	LC50 b	IR mortality	mortality	т	5500 ual.				NR 2236	Schaefer E.D. and W.O. Pines	Temperature and the Toxicity of Chromate and Assenses to the Rotifer, Philodina roseols	Water Res.7(12): 1701-1790	1973 test duration
Part	Americ 7	778430 /	Arsenic acid (H3AsO4), Disodium salt	Philodra rossola	Rottler	adult	s м	A FW	LAB	4 d	LC50	IR mortality	mortality	т	8200 upt.				NR 2236	Schwefer E.D., and W.O. Pipes	Temperature and the Toxicity of Chromate and Ansenate to the Rotifer, Philodina roseols	Water Rex.7(12): 1781-1790	1973 test denation
## 1985 Section of Section Continues of Section C	Americ 7	778430	Arsenic acid (H3AsO4), Disodum salt	Poterropyrpus antipodarum	Snet	adult	r M	A FW	LAB	2 d	ECSO I	VC intoxicatio	n irrobilization	т	325000 upl.				NR 7583	Golding,L.A., M.H. Timperley, and C.W. Evens	Non-lethal Responses of the Freshwater Snall Potemosusus antipodesum to Dissolved Assertic	Environ, Monit, Assess, 47(3): 239-254	1997 test duration
## 1985 Section of Section Continues of Section C	Americ 7	778430 /	Arsenic acid (H3AsO4). Disodium salt	Potamopyrgus antipodarum	Snal	adult	r M	A FW	LAB	3 d	ECSO E	9C intoxicatio	n irrobilization	т	135000 ug/L				NR 7583	Golding, L.A., M.H. Timperley, and C.W. Evens	Non-lethal Responses of the Freshwater Snell Potemocynous anticodenum to Dissolved Assenic	Environ, Monit, Assess 47(3): 239-254	1997 test duration
According 19 Acco	Americ 7	775430	Arsenic acid (H3AsO4), Disodium salt	Potemopyrgus antipodarum	Snat	adult	F M	A FW	LAB	4 d	ECSO II	VC intoxicatio	n irrobilization	т	111000 ugl.					Golding L.A., M.H. Timperley, and C.W. Evens	Non-lethal Responses of the Freshwater Snall Potamopinous antibodarum to Dissolved Ansenic	Environ, Mont. Assess.47(3): 239-254	1997 lest deration
Assert 7500 August 20 Augu	Americ 7	778430	Arsenic acid (H3AsO4), Disodum salt	Poterropyrpus antipodarum	Snet	adult	r M	A FW	LAB NR	d	EC50	9C intoxicatio	nimobilization	т	7444 ugl.				NR 7563		Non-lethal Responses of the Freshwater Snall Potamopyrgus antipodarum to Dissolved Ansenic	Environ Mont. Assess 47(3): 239-254	1997 test duration
Assert 7500 August 20 Augu	Americ 7	784465	Arsenenous acid. Sodium sait	Ambyatoma operum	Marbled Selamender	6925	R M	A FW	LAB	5 d	LCS0 B	IR mortality	mortality	7	4450 ug/L	72 78		93	105 mol. CaCO3 6199	Westerman	Embryo-Lanval Bioassays on Increasic Coal Elements and in Situ Biomonitoring of Coal-Waste Effluents	in Eastern U.S., WV97-104 In: J.H. Thorp and J.W. Gibbons (Eds.), Dec. Energy Symp. Ser., Energy and	1978
Name	Americ 7	784465	Arsenenous acid, Sodium salt	Gastrophryne carolinensis	Eastern Narrow-Mouthed Toad	6931	R M	# FW	LAB	7 d	LCS0 II	VC mortality	mortality	T	40 ugt	7.4	195			Biros.W.J.			1978
Part	Americ 7	784465	Arsenenous acid. Sodium sait	Ceriodaphnia dubia	Water Flea		R M	FW.	LAB	7 d	ECSO C	IEC reproducti	on progeny counts	0	1259 upl.		100		mol. CaCO3 12093	Spehar, R.L., and J.T. Flandt Call, D.J., L.T. Brooke, N. Ahmad, and J.E.	Acute and Chronic Effects of Water Quality Criteria-Based Metal Mintures on Three Aquatic Species Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related	Environ, Toxicol, Chem.5(10): 917-931	1986
Asset: 795400, Assettation and Superior and Chiffornia St. 2 and Color 100 and 2 and 2 and 100 and 2 and	Americ 7	784465 /	Arsenenous acid. Sodium sait	Daphnia magna	Water Flex	instar	S M	FW.	LAB	2 d	ECSO I	SC intoxicatio	n irrobilization	Į.	4830 upt.				mol CaCO3 10579	Richter Lima A.R., C. Curtis, D.E. Hammermeister,	Chemicals in Freshwater Organisms	EPA 6007-83-005, U.S. EPA Dulate, MN-120 p.	1953 test duration
Assert 7,78500 Agreement of Uniform all Depths region of Section 1 and 1	Americ 7	754465 A	wsenehous acid, Sodium sait	usprina magna	world Flex		S M	. FW	LAS	1 8	EUOO E	vu Intoécatio	n Implication		2160 togl.				49.9 [mol CaCO3 10095	Lima AR, C. Curta, D.E. Hammermeister,	Acute and Coronic Toxicities of Americalli to Fathead Mirrows, Flacing, Destroid, and an Americad	Arch. Environ. Content. Toxicol. 13/51: 595-601	1954 lest duration
American and Substrate and S	Americ 7	-54465 J	Assessment and Sadum and	Lasperia magna	Water Flor		, M	, PW	LAB	1 8	scot scot	ot intoductio	n Irrobilization		7250 tool.	72 81		46.3	49.9 mol CaCO3 10005	Lima AR, C. Curta, D.E. Hammermeister,	And and County Testifies of Assert(18) to Patricks Minrows, Flagfish, Daphrids, and an Amphipod	First England Contain Toront 1905-001	1954 heat duration
American region Transfer American region Transfer Transf	Americ 7	784405	Arsenenous acid. Sortem and	Dachnia magna	Water Flea		s	A FW	LAB	2 d	ECSO .	C Introduction	n implifration	1	4630 upl	72 81		46.3	49.9 mg/L CaCO11 10095	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markes, C.E. Notherst and I.T. Process	Acute and Chronic Toxicities of Americalli to Fathead Mirrows: Flantish: Desbride, and an Ambridd Acute and Chronic Toxicities of Americalli to Fathead Mirrows: Flantish: Desbride, and an Ambridde	Arch Emison, Contain Toxical 13/5: 595-501	1984 test duration
### Page 12 19 19 19 19 19 19 19	Americ 7	784465	Arsenenous acid. Sodium sat	Dachnia magna	Water Flea		5 4	A FW	LAB	3 d	ECSO	VC intoxication	n implifuation	т .	1500 upt	7.2 81			49.9 mpl. CaCO3 10005	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Ansenic(III) to Fathead Mirnows, Flagfath, Daphnids, and an American	Arch. Environ. Contam. Toxicol.13(5): 595-601	1984 test duration
April Apri	Americ 7	784465	Arsenenous acid. Sodium sait	Dachnia magna	Water Flea		s M	4 FW	LAB	3 d	EC50 I	VC interiories	n irrobilization	т	4630 upl	7.2 5.1		46.3	49.9 mm1 CaCCO1 10995	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markes, C.F. Northyntt and I.T. Brooks	Anata and Chamin Toxinities of Assenic(III) in Esthead Minnows Flantish Danhoids and an Ambinori	Arch Environ, Contam. Toxicol 13/5): 595-601	1984 test duration
	Americ 7	784465	Arsenenous acid. Sodium sait	Daphnia magna	Water Flea		s M	A FW	LAB	4 d	ECSO I	9C intoxicatio	n irrobilization	т	1500 ugl.	7.2 8.1		46.3	49.9 mol CaCO3 10095	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Americalli to Fathead Mirrovas, Flacilah, Dashnida, and an Americad	Arch. Erwinon, Contam. Toxicol 13/5: 595-601	1984 test duration
Accors: 178400 Summora and Soliton and Summora and Sum	Americ 7	784465	Arsenenous acid. Sodium salt	Daphnia magna	Water Flea		s M	A FW	LAB	4 d	ECSO I	VC intoxicatio	n irrobilization	т	4340 ugl.			46.3	49.9 mol CaCO3 10035	Lima A.R., C. Curta, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Asseric(III) to Fathead Mirnows, Flagfish, Daphnids, and an Amphipod	Arch. Environ. Contam. Toxicol.13(5): 595-601	1984 test duration
James 79440 Jameserous and Schiefers at Generacia and Schiefers at Generacia and Schiefers at General and Schiefers and General Schi	Americ 7	784465	Arsenenous acid. Sodium sait	Germanus poeudolimnaeus	Sout		r M	A FW	LAB 1	.7917 d	ECSO E	VC intoxicatio	n implifution	т	1990 upl.	7.2 8.1		46.3	49.9 mol CaCO3 10595	Lima A.R., C. Curta, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Americ(III) to Fathead Minnows, Flaofish, Daphnids, and an Amphicod	Arch Emison Contem Toxicol 13/5: 595-601	1954 test duration
	Americ 7	784465	Arsenenous acid. Sodium salt	Garmanus posudolimnasus	Sout		r M	A FW	LAB 2	6667 d	EC50	9C intoxicatio	mobilization	т	1020 upl	7.2 5.1		46.3	49.9 mol CaCO3 10095	T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Assenic(III) to Fathead Minnows, Flacilish, Daphnids, and an Archipod	Arch. Erwison, Contern. Toxicol. 13/51: 595-601	1984 test duration

Appendix A Summary of Aquatic Toxicity Data Considered for Development of SSD - Arsenic

Mathematical Content																						
Part	Americ 7784	65 Arsenenous acid. Sodium sait	Gammarus posudolimnaeus	Soud		F M	fW	LAB	4 d	EC50	NC intoxicati	on imphilization	т	874 ugl.	7.2 8.1		46.3 49.9	m)L CaCO3 10095	Lima A.R., C. Curtis, D.E. Hammermeister, 5. T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Assenic(III) to Fathead Minnows, Flacifish, Dephnide, and an Amphipod	Arch Environ, Contam. Toxicol 13/51: 595-601	1984 test duration
Mathematical Content	Americ 7784	65 Arsenerous acid. Sodium set	Ceriodephnia dubia	Water Flea		s м	fW	LAB	2 d	LC50	NC mortality	mortality	D	1445 upl 6	2 8 85	100		nol. CaCO3 12090	Soehar R.L. and J.T. Flands	Acute and Chronic Effects of Water Quality Criteria-Bessel Metal Matures on Three Aquatic Species	Environ Toxicol, Chem 5/10/: 917-931	1985 lest duration
March Marc	Americ 7784	65 Arsenenous acid, Sodium sait	Gammarus posudolimnaeus	Scud	-	F M	fW	LAB	1.8125 d	LCSO	iR mortality	mortality	т	1990 ugl. 7	.7	46.3		nol CaCO3 10575	Call D. J. L. T. Brooke, N. Ahmad, and J.E. Richter	Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related Chemicals in Freshwater Organisms. Toxicity and Metabolism Studies with EPA (Environmental Protection Agency) Priority Pollutants and Related	EPA 600/3-83-005, U.S.EPA, Dukeh, MN:120 p.	1983 test duration
Column	Americ 7784	65 Arsenerous acid. Sodium set	Gammarus posudolimnaeus	Sout		F M	fW	LAB	3 d	LC50	iR mortality	mortality	т	875 upl 7	17	46.3		nol. CaCO3 10575		Chemicals in Freshwater Organisms Training and Matshriller Studies with FPA (Fredoresental Protection Assert) Princip Polisharts and Related	EPA 600/3-83-095, U.S.EPA, Dukeh, MN:120 p.	1983 test duration
	Americ 7784	65 Arsenenous acid. Sodium sait	Gammarus posudolimnasus	Sout		r M	FW	LAB	4 d	LCSO	iR mortality	mortality	т	875 upl 7	17	46.3		vol. CaCO3 10575	Richter	Chemicals in Freshwater Orosniams	EPA 500/3-83-995, U.S.EPA, Duluth, MN-120 p.	1983 test duration
March Marc	Atsenic 7784	65 Arsenenous acid, Sodium salt	Ceriodaphnia dubia	Water Flea		R M	FW.	LAB	7 d	MATC	DEC reproduc	tion progeny counts	D			100		nol. CaCO3 12093	Soshar.R.L. and J.T. Flandt Hartwell,S.I., J.H. Jin, D.S. Cherry, and J.Jr.	Acute and Chronic Effects of Water Quality Criteria-Bassed Metal Matures on Three Aquatic Species		1986
Part	Americ 7784	65 Arsenerous acid. Sodium set	Notemigorus crysoleucas	Golden Shiner			PW PW	LAB	1 1	ECSO .	iR avoidanc	e chemical avoidan	v v					D 228		Touch of ferents Auditance response or Looken Shiner, Notemportus Crystaleucia, 10 Five Metas	Comp. Blocker, Blocket, C. Comp. Blocker, 157(1), 57.50	1989 test duration
Mathematical Content of the conten	Americ 7784	65 Arsenerous acid. Sodium salt	Exas manauronay	Muskellunge	fry	s M	fW	LAB	4 d	LCSO	iR mortality	mortality	т	2500 ugt.	7.6 7.9			R 844		Toxicity of Assenic to Developing Markethrone Pry (Exor manufactory)	Comp. Blochem. Physiol. C Comp. Pharmacol.52111: 67-69	1979 test duration
March Marc	Americ 7784	65 Arsenenous acid. Sodium sait	Exax manavironay	Muskellunge	swim-up	s M	fW	LAB	4 d	LCSO	iR mortality	mortality	т	1100 ugl.	7.2 7.7			IR 846	Spotla,J.R., and F.V. Paladino	Toxicity of Assenic to Developing Muskellungs Fry (Esox masquinongy)	Comp. Blochem. Physiol. C Comp. Pharmacol.62(1): 67-69	1979 test duration
Manuscript Man	Americ 7784	65 Assensnous acid. Sodium salt	Micropterus salmoides	Largemouth Bass	6028	R M	FW	LAB	8 d	LCSO	iR mortality	mortality	т				93 105	mL CaCO3 6190	Birge,W.J., J.E. Hudson, J.A. Black, and A.G. Westermen	Embro-Larvel Sicessays on Increasic Coal Elements and in Situ Biomonitoring of Coal-Waste Effuents	In: Symp., U.S.Fish Wild.Serv., Dec.3-6, 1976, Surface Mining Fish Wild.needs in Eastern U.S., WV97-104	1976
Mathematical Content of the conten	Americ 7784	65 Arsenenous acid, Sodium salt	Notropis hudsonius	Spottall Shiner	juveniles	s M	FW	LAB	1 d	LC50	NC mortality	montality	т					IR 10290	Boschetti.M.M., and T.F. McLouphin	Toxicity of Sodium Arsenite to Minnows	Santa 84: 14-15	1957 test duration
Martin	Americ 7784	65 Assensnous acid. Sodium salt	Notropia hudionius	Spottal Shiner	izvenies	s м	FW	LAB	2 d	LCSO	NC mortality	mortality	т					IR 10290	Boschetti,M.M., and T.F. McLoughlin	Toxicity of Sodum Arsenite to Minnows	Sanitali 5: 14-18	1957 test duration
Column C	Americ 7784	65 Arsenerous acid. Sodium set	Notropis hudsonius	Spotted Shiner	kventes	s м	fW	LAB	3 d	LC50	NC mortality	mortality	т					IR 10290	Boschetti M.M., and T.F. McLouphin	Toxicity of Sodium Assents to Minnows	Santali 5:14-15	1957 test duration
March Marc	Americ 7784	65 Arsenenous acid. Sodium sait	Jordanella floridas	Flagfah	embryo	r M	FW	LAB	31 d	EC50	NC mortality	mortality	т	14200 ug/L	7.2 8.1		46.3 49.9	w.L.CaCO3 10695	T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Ansenic(III) to Pathead Minnows, Fladfish, Dashnids, and an Amphicod	Arch. Environ. Contem. Toxical 13/51: 595-601 Third Quarterly Prog.Rep. to EPA, EPA Coop.Agreement No. CR 806954030,	1984
Martine	Americ 7784	65 Arsenerous acid. Sodium set	Jordanella floridas	Flagfah		F M	fW	LAB	4 d	EC50	iR behavior	equilibrium	т	14200 ugl. 7	2 7 7.4	50.1	49 57	vol. CoCO3 5940	Call,D.J., L.T. Brooke, and N. Ahmad	Estimates of 'No Effect' Concentrations of Selected Pesticides in Freshwater Organisms	Univ.of Wisconsin, Superior, Wt-37 p. Third Quarterly Prog.Rep. to EPA, EPA Coop.Agreement No. CR 806954030,	1980 lest duration
March Marc	Americ 7784	65 American and Sodium set	Gordanella floridas	Flagfah Entrand Massac			- PW	LAB	77 4	ECSO.	off behavior	legalibrium		14200 upt 7	2 7 74	47.0	49 57	-1 C+CO3 1707	Call D.J. L.T. Brooks, and N. Ahmad	Estimates of No Effect Concentrations of Selected Pasticides in Freshwater Occanisms Anata and County Effects of Water Contine Colonia Record Metal Michael on These Association Security.	University seconds in Substituti Micar B.	1980 lest duration
Mart	Americ 7784	55 American and Sodium salt	Jordanulla Soridae	Elardish.	ter	F M	FW	LAB	1 4	1050	NC mortality	motality	т	18300 upl	72 81	- 124	45.3 49.9	w) C+CO3 1000	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Americalili to Pathead Minnows, Radiah, Dashnida, and an Amphicod		1954 hast dynation
Mart	Americ 7784	65 Arsenenous acid. Sodium sait	Jordanella floridas	Flaciah	tre	F M	fW	LAB	1,2083 d	LCSO	iR mortality	mortality	т					R 530	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur	Acute Toxicity of Selected Toxicants to Six Soucies of Fish	EPA600/3-76-008, U.S.EPA, Duarh, MN-125 p.	1976 test duration
March Marc	Americ 7784	65 Arsenenous acid. Sodium sait	Jordanella floridae	Flagfah	tre	F M	fW	LAB	2 d	LCSO	NC mortality	mortality	т	16200 upl.	7.2 8.1		46.3 49.9	m)L CaCO3 10000	Lima A.R., C. Curtis, D.E. Hammermeister, T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Assenic(III) to Fathead Minnows, Flacifish, Dephnide, and an Amphipod	Arch Environ, Contam. Toxicol 13/51: 595-601	1984 test duration
March Marc	Americ 7784	65 Assensnous acid. Sodium salt	Jordanella floridas	Flagfish	fry	г м	FW	LAB	2.7917 d	LC50	iR mortality	mortality	т	sosoo ugt.				R 836	Cardwell,R.D., D.G. Forerran, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008. U.S.EPA. Dulurh. MN:125 p.	1976 lest desidon
Martin	Americ 7784	65 Arsenenous acid. Sodium sat	Jordanella floridas	Flagfish	fry	г м	FW	LAB	3 d	LC50	NC mortality	mortality	т	15900 ugl.	7.2 5.1		45.3 49.9	nol CaCO3 10695	Lima A.R., C. Curta, D.E. Hammermeister, 5 T.P. Markee, C.E. Northcott, and L.T. Brooke Conteel B.D. D.G. France, Y.B. F.	Acute and Chronic Toxicities of Americ(III) to Fathead Minnovas, Flacilish, Dashnida, and an Americod	Arch. Emiron. Content. Toxicol. 12(5): 595-601	1954 test duration
March Marc	Arsenic 7784	65 Arsenenous acid. Sodium salt	Jordanella floridae	Flagfish	fry	P M	FW	LAB	3.875 d	LC50	iR mortality	mortality	T					R 536	Cardeel R.D., D.G. Foreman, T.R. Payre,	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976 test duration
Part	Arsenic 7784	65 Arsenenous acid. Sodium sait	Jordanella floridas	Flagfish	try	F M	FW	LAB	3.875 d	LC50	iR mortality	mortality	T					IR 830	and D.J. Wibur Cardwell,R.D., D.G. Forerran, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA4003-76-008, U.S.EPA, Dukuth, MN:125 p.	1076 heat rhamilion.
Part	Americ 7784	65 Arsenerous acid. Sodium set	Jordanella Sorciae	Pagfah	fry		FW	LAB	3.875 d	LC50	GR mortality	modality					#3	R 53	Lima A.R., C. Curtis, D.E. Hammermeister,	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPASON 75008. U.S.EPA Dukeh MV-125 p.	1976 heat duration
Mart	Americ 7784	65 Arsenerous and Sodium salt	Lacomia macro-hima	Discil	trantes	F	FW	LAB	1.7917 d	LCSO	(R produit-	monally monally	1	50500 upl 7.5		140	-0.3 40.0	TOL CACOT	Cardwell,R.D., D.G. Forerran, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-5003-76-008. U.S.EPA. Duluth. MP-124-n	1976 had devision
Mart	Americ 7784	65 Arsenenous acid, Sodium salt	Lapomia macrychinus	Dural	izvenies	, ,	FW.	LAB	10 d	LC50	iR mortali-	mortality	1	47800 ugl. 77	12	147		not CaCON AN	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Flah		1976
Mart	Americ 7754	65 Arsenerous acid. Sodium set	Lepomis macrochinus	Burgil	aventes	r M	fW	LAB	11 d	LCSO	iR mortality	mortality	т	42200 ugl. 7.8	12	147		rol CoCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976
Mathematical Math	Americ 7784	65 Arsenenous acid, Sodium sait	Lepomis macrochinus	Bluegil	juveniles	F М	rw.	LAB	12 d	LC50	iR mortality	montality	т	37000 ugt. 7.6	12	147		not CaCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Flah	EPA-600/3-76-008. U.S.EPA. Dukeh. MN:125 p.	1976
Mathematical Math	Americ 7784	65 Arsenerous acid. Sodium selt	Lepomia macrochinus	Burgil	izveniles	F M	fW	LAB	14 d	LCSO	iR mortality	mortality	т			147		nol CaCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Flah	EPA-600/3-76-006, U.S.EPA, Dulurh, MN:125 p.	1976
Mathematical Math	Americ 7784	65 Arsenerous acid. Sodium set	Lepomia macrochinus	Burgil	kventes	F M	fW	LAB	2 d	LC50	iR mortality	mortality	т			140		nol. CoCO3 838	E and D.J. Wibur Conteel R.D. D.G. Frommer, T.R. Player,			1976 lest duration
Part	Arsenic 7784	65 Arsenenous acid, Sodium sait	Lepomis miscrochinus	Bloogil	juveniles	F M	fW	LAB	2.7917 d	LC50	iR mortality	mortality	т	47500 ugit. 7.5	26	140		not CaCO3 838	and D.J. Wibur Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976 test duration
Part	Americ 7784	65 Arsenenous acid. Sodium sait	Lepomis macrochinus	Busqil	kventes	F M	fW	LAB	3.2083 d	1.050	iR mortality	mortality	Т	44500 upl. 7.5	26	140		nol CaCO3 838	and D.J. Wibur Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Flah		1976 test duration
	Americ 7784	65 Arsenerous acid. Sodium set	Lepornia macrochinus	Busyl	kventes	. M	PW PW	LAB	3,8333 d	LCSO	CR mortality	mortality		33300 upl 7.5		140			Cardwell,R.D., D.G. Foreman, T.R. Payne,			1976 lest duration
Mathematical Math	Americ 7784	65 Arsenerous acid. Sodium salt	Lepomia macrochinus	Durgil	izveniles	r M	FW.	LAB	4 d	LCSO	iR mortality	mortality	т			147		-1 0-001	Cardwell,R.D., D.G. Foreman, T.R. Payne,			1976 test duration
	Americ 7784	65 Arsenenous acid. Sodium sait	Lepomia macrochinus	Sugil	kovenšes	М	rw.	LAB	5 d	LCSO	GR mortality	mortality	т	67300 ugl. 7.6	12	147		not CaCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA, Dulurh, MN:125 p.	1976
Marked Property Marked	Americ 7784	65 Arsenenous acid. Sodium selt	Lapomia macrochinus	Burgil	izveniles	r M	FW	LAB	7 d	LC50	iR mortality	montality	т	61700 upl. 7.6	12	147		nol CaCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA6003-76-008, U.S.EPA Dulurb, MN-125 p.	1976
Marked Property Marked	Americ 7784	65 Arsenenous acid. Sodium sait	Pimephales prometes	Fathead Minrow	tre	r M	fW	LAB	1 d	LC50	NC mortality	mortality	т	18900 ugl.	7.2 5.1		46.3 49.9	nol. CaCO3 10095	Lima A.R., C. Curta, D.E. Hammermeister, 5 T.P. Markee, C.E. Northcott, and L.T. Brooke	Acute and Chronic Toxicities of Ansenic(III) to Fathead Minnows, Flagfish, Daphnida, and an Amphipod	Arch. Environ. Contam. Toxicol.13(5): 595-601	1984 test duration
Part	Americ 7784	65 Arsenenous acid. Sodium sait	Pimephales prometes	Fathead Minrow	fry	F M	fw.	LAB	2 d	LCSO	NC mortality	mortality	т	15900 ugl.	7.2 5.1		46.3 49.9	vol. CaCO3 10090	T.P. Markee, C.E. Northcott, and L.T. Brooke Lima A.R., C. Curtis, D.E. Hammermeister.	Acute and Chronic Toxicities of Americ(III) to Fathead Minnows. Flanfish. Dechnids, and an Americod	Arch. Environ. Contam. Toxicol 13/5i: 595-601	1984 test duration
Part	Americ 7784	65 Arsenenous acid. Sodium set	Pimephales promeles	Fathead Minrow	fry	F M	fW	LAB	3 d	LC50	NC mortality	mortality	т				46.3 49.9	vol. CaCO3 10695	5 T.P. Markee, C.E. Northcott, and L.T. Brooks Lima A.R., C. Curtis, D.E. Hammermeister,	Acute and Chronic Toxicities of Assenic(III) to Fathead Minnzes. Flaofish, Dashnida, and an Archicod	Arch. Emviron. Contern. Toxicol. 12/5): 595-601	1984 test duration
March Marc	Americ 7784	65 Arsenenous acid. Sodium sait	Pimephales prometes	Fathead Minrow	fry	, M	FW.	LAB	4 d	LCSO	NC mortality	mortality	_				463 49.9	w1 C+CO1 1000	T.P. Markee, C.E. Northcott, and L.T. Brooke Cardwell,R.D., D.G. Forerran, T.R. Payne,	Acute and Chronic Toxicities of Americilli to Pathead Minnows. Placifish. Disbhrids. and an Americod	Arch. Environ. Content. Toxicol.13/5i: 595-601	10% test rismation
March Marc	Americ 7784	65 Arsenerous acid. Sodium set	Pimephales prometes	Fathead Morrow	kventes	. M	PW PW	LAB	0.5833 d	LCSO	CR mortality	mortality		45300 upl 7.3		149		-1 C-CO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Teachy of Selected Teaconts to Six Seeces of Fish Acute Teachy of Selected Teaconts to Six Seeces of Fish	EPA-600-7-76-008, U.S.EPA, Dukeh, MN-125 p.	1976 lest duration
Part	Americ 7784	65 Arsenerous acid. Sodium salt	Pimephales prometes	Fathead Minrow	izvenies	r M	fW	LAB	1 d	LCSO	(R mortality	mortality	т	36200 upt. 7.3	77	149		w1 C+CO1 838	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA. Duluth. MN:125 p.	1076 last duration
The control of the	Americ 7754	65 Arsenerous acid. Sodium set	Pimephales prometes	Fathead Morcos	aventes	r M	fW	LAB	11.7917 d	LCSO	iR mortality	mortality	т	21700 uni 7.3	77	149		rol CoCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-500/3-76-006, U.S.EPA, Dularh, MN:125 p.	1976
March Column Co	Americ 7784	65 Arsenenous acid. Sodium sait	Pimephales prometes	Fathead Minrow	aventes	г м	fW	LAB	14 d	LCSO	iR mortality	mortality	т			149		nol. CoCO3 836	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-500/3-76-008. U.S.EPA. Dukeh. MN-125 p.	1976
March Column Co	Americ 7784	65 Arsenerous acid. Sodium set	Pimephales prometes	Fathead Morcos	kventes	F M	fW	LAB	2 d	LC50	iR mortality	mortality	т			149		wi C+CO3 838	Cardwell,R.D., D.G. Forerran, T.R. Payns, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Soucies of Flah	EPA-600/3-76-008, U.S.EPA, Dulurh, MN:125 p.	1976 last dension
March Column Co	Arsenic 7784	65 Arsenerous acid. Sodium salt	Pimephales prometes	Fathead Minrow	izventes	F M	fW	LAB	3 d	LC50	iR mortality	mortality	T			149		nol CaCO3 838	and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Socies of Fish	EPA-500/3-75-038, U.S.EPA Dukrh, MN:125 p.	1975 test duration
Part	Americ 7754	65 Arsenenous acid. Sodium salt	Pimephalea prometes	Fathead Minrow	kventes	P M	FW	LAB	4 d	LC50	NC mortality	mortality	T	23600 upl. 7.81		45'		mL CaCO3 15031	Broderius S.J. M.D. Kahl, and M.D. Hookind Cardwell, R.D., D.G. Forerran, T.R. Payne,	Use of Joint Traic Resource to Define the Primary Mode of Traic Action for Diverse Industrial Organic Chemicals	Emylson, Toxicol, Chem 14/3/: 1591-1605	1995 test duration
Part	Arsenic 7784	65 Arsenerous acid, Sodium sait	Pimephales prometes	Fathead Minrow	jzvenšes	y M	FW	LAB	4 d	LC50	eR mortality	mortality	1	27000 ugl. 7.3	77	149		not CaCO3 838	Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976 heat duration
Part	Americ 7754	60 Arsenerous acid. Sodium salt	Pimerhales prometes	Fathead Morrow	screnies .	, M	rw nw	LAB	4.7917 d	1050	NC mortelity	modally modally	n			43.0		mi CaCON AND	Snahar B1 and IT Flands	Ande and Chonic Filler's of Water Codin Cristin-Report Matel Mahasan on These Angelia Province		1976
Part	Arsenic 7784	65 Arsenerous acid, Sodium salt	Salvelnus fontinalis	Brook Trout	adult	r M	FW	LAB	0.9167 d	LC50	iR mortality	monalty	т	54100 ugt. 7.3	75	152		nol CaCO3 830	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976 test duration
Part	Americ 7784	65 Assensnous acid. Sodium salt	Salvelinus fontinalis	Brook Trout	adult	r M	fW	LAB	1 d	LC50	iR mortality	mortality	т	53900 upl. 7.3	75	152		nol CaCO3 830	Cardwell,R.D., D.G. Forerran, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish		1975 test duration
Part	Americ 7784	65 Arsenenous acid. Sodium salt	Sahelinus fontinalis	Brook Trout	adult	r M			1.25 d	LC50	iR mortality	mortality	т	40800 ugl. 7.1	75	152		nol CoCO3 836	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976 test duration
Application	Americ 7784	GS Arsenenous acid, Sodium sait	Salvelinus fontinalis	Brook Trout	adult	r M	FW	LAB	1.2917 d	LC50	4R mortality	mortality	т	42200 ugt. 7.3	75	152			Cardeniyes, s.o. reterial, r.r. rayin,		EPA-600/3-76-008. U.S.EPA. Duluth. MN:125 p.	1976 test duration
## PASSES Secure and Embrade Secure and Embrade	Americ 7784	65 Arsenerous acid. Sodium salt	Salvelinus fontinalis	Brook Trout	adult	r w	FW	LAB	10,9167 d	LCSO	iR mortality	mortality	т.	18000 ugt. 7.3	73	152		nol CaCO2 830	and D.J. Wibur Control P.D. D.G. France, T.P. F	Acute Toxicity of Selected Toxicants to Six Species of Flah		1976
Accordance of Authorization Acco	Arsenic 7784	65 Arsenenous acid. Sodium salt	Salvelinus fontinalis	Brook Trout	adult	P M	FW	LAB	2 d	LC50	iR mortality	mortality	T			152		nol CaCO3 836	Cardeel R.D., D.G. Foreman, T.R. Payre,			1975 test duration
Appeal Part Appeal App	Americ 7754	65 Arsenerous acid, Sodium sat	Salvelinus fontinalis	Brook Trout	adult	у м	FW	LAB	3.875 d	LC50	CR mortality	mortality	т	25800 ugt. 7.1	75	152		not CaCO3 838	S and D.J. Wibur Cardwell,R.D., D.G. Forerran, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Figh		1976 lest duration
Appeal Part Appeal App	Americ 7784	65 Assensnous acid. Sodium selt	Salvelinus fontinalis	Brook Trout	adult	, M	FW.	LAB	5 d	LC50	iR mortality	mortality	1			152		not CaCO3 838	and D.J. Wibur Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish		1976
Part	Americ 7784		Pimophales promeiro	Fathead Mineron	embryo	, M	FW	LAB	30 d	MATC	off mortality	mortality supply**	ļ.	11000 upt. 7.3	17	49,11		TOL CACON STATE		Access a concey or presence of industrial and Acricultural Chemicals to Fetheral Minorary (Personalism represents). Making a	Center for Lake Superior Environmental Studies, University of Waconsin.	1992
Annual Part Annual Assessment Annual Ass	Americ 7784	65 Arsenenous acid Sodum salt	Pimenhales prometes	Fathead Mingrey	embrup	F M	rw.	LAB NP		MATC	DEC develore	nent normal	T	16500 upl. 7 1	17	49,13		nol CaCO3 15/W9		Subchronic Toxicities of Industrial and Agricultural Chemicals to Fathead Minnows (Pimephales promises). Volume I	Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, W1318 p.	1992 test duration
Autonome and Submitted and Submitted and Submitted Sub	Americ 7784	65 Assensnous acid. Sodium salt	Pimephales prometes	Fathead Minrow	embryo	r M	fW	LAB	30 d	MATC	DEC growth	length	т	1500 ugt. 7.1	17	49.13		vol. CuCO3 150898		Subchronic Toxicities of Industrial and Agricultural Chemicals to Fathead Minnous (Pimephales prometas), Volume I	Center for Lake Superior Environmental Studies, University of Wisconsin, Superior, WI 318 p.	1992
Agency 2 March Superconnect Mathemated Contractions and Superconnect Mathematical Contractions and Superconnect	Americ 7784	65 Arsenenous acid. Sodium salt	Pimephales prometes	Fathead Minrore	embryo	r M	fW	LAB	30 d	MATC	DEC growth	weight	-	1500 ugl. 7.1	17	49.13		nol. CaCO3 150898	Call D.J. and D.L. Geiger	Subchronic Toxicities of Industrial and Agricultural Chemicals to Fathead Minnous (Pimechales prometas). Volume I	Center for Lake Superior Environmental Studies, University of Wisconsin,	1992
Agency 2 March Superconnect Mathemated Contractions and Superconnect Mathematical Contractions and Superconnect	Americ 7784	65 Arsenenous acid. Sodium selt	Oncorhynchus mykiss	Rainbow Trout	E028	R M	fW	LAB	28 d	LC50	NC mortality	mortality	т	540 ugl. 7	4	104	_	wi C+CO3 530	Siros.W.J.		in: J.n. Inorp and J.W.Gibbons (Eds.), Dep.Energy Symp. Ser., Energy and Environmental Shass in Assasia Systems, Aucusts. GA63:219-240	1978
America: 79400 Agreement and Submitted Security and Submitted Securi	Americ 7784	65 Arsenerous acid. Sodium salt	Oncorhynchus mykiss	Rainbow Trout	6000	R M	fW	LAB	28 d	LC50	iR mortality	mortality	т	540 upl.	7.2 7.8		93 105	m)L CaCO3 6190				1976
American part Delication Part Delicati	Americ 7784	65 Arsenenous acid. Sodium salt	Oncorhynchus mykiss	Rainbow Trout	<u> </u>	F M	FW	LAB	5 d	LC50	iR mortality	mortality	T	13900 ugl.	+	-+		R 39				1989
American part Delication Part Delicati	Americ 7784	65 Assensous acid. Sodum salt	Oncorhynchus mykiss	Rainbow Trout	t	F M	FW	LAB	5 d	LC50	iR mortality	mortality		27430 ugl.	$\pm \pm \pm$						Ecolosical, Emiron, Sat 1711): 85-93 in: J.H.Thorp and J.W.Gibbons (Eds.), Dep.Energy Symp.Ser., Energy and	1089
Person Transfer Person	Americ 7754	60 Arsenerous acid. Sodium salt	Carassica suratus	Loidish Costish	komiter	g M	FW.	LAB	7 d	1050	on mortality	modelly	,	490 ugl 7	.4	125		wit CuCO2 532	Cardwell,R.D., D.G. Foreman, T.R. Payne,			1975 had desire
	Americ 7784	65 Arsenerous acid. Sodum and	Caranaka auratus	Goldfish	tavenies	, ,	FW.	LAB	0.75 d	LCSO	(R mortelle	mortality	T .			145		val C+CO3 83	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur			1075 last dynation
	Americ 7784	65 Arsenerous acid. Sodium salt	Caranaka auratus	Goldfah	kzyeniles	r M	fW	LAB	1 d	LC50	iR mortality	mortality	т			145		nol CaCO3 830	Cardwell,R.D., D.G. Forerran, T.R. Payne, and D.J. Wibur			1975 test duration
Assert Table Assert As	Americ 7784	65 Arsenenous acid. Sodium salt	Carsasko auratus	Goldfah	kryenies	r M	fW	LAB	1.5 d	LC50	iR mortality	mortality	т	60800 ugl. 7.6	51	145		nol CoCO3 836	Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600'3-76-006. U.S.EPA, Drawh, MN-125 p.	1976 test duration
Tension Tradeol Superson and Endow set Communic Control Set Contro	Americ 7754	65 Arsenenous acid, Sodium sait	Carassius auratus	Goldfish	promies	F М	FW	LAB	10 d	LC50	iR mortality	mortality	т	33100 ugt. 7.6	51	148	_	not CaCO3 838	Cardwell R.D., D.G. Foreman, T.R. Payne, and D.J. Wilbur Cardwell R.D. D.G. Foreman, T.P. Pro	Acute Toxicity of Selected Toxicants to Six Socies of Fish		1976
	Americ 7784	65 Arsenerous acid. Sodium selt	Caranako auratua	Goldfish	aventes	r M	fW	LAB	14 d	LC50	iR mortality	medality	IT .	32100 upl 7.6	51	148		wt.CaCO3 838	and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA, Duluth, MN:125 p.	1976

Appendix A Summary of Aquatic Toxicity Data Considered for Development of SSD - Arsenic

Americ 7784	65 Arsenenous acid. Sodium salt	Caranaka auratus	Goldfish	izvenies	r .	M FW	LAB	2 d	LCSO	NR mortality	mortality	т	54600 uat.	7.61	145	mol CaCO3 &	Cardwell,R.D., D.G. Foreman, T.R. Payne, 35 and D.J. Wibur	Acute Torichy of Selected Toxicants to Six Species of Fish	EPA600/3-76-008, U.S.EPA Dukrh, MN:125 p.	1976 test duration
Amaric 7784	65 Arsenerous acid. Sodium salt	Carenaire auratus	Goldish	krantes	,	M FW	148	3.4	1050	NB mortality	modulity	т	50000 unit	7.63	145	mol CoCON &	Cardwell,R.D., D.G. Foreman, T.R. Payne,	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA, Duluth, MN:125 p.	1975 test duration
Americ 7784	65 Arsenenous acid, Sodium salt	Carsasius auratus	Control			M EW	1.00		1000	N/D		T	44000	741		mpl CaCO3 8	Cardwell,R.D., D.G. Foreman, T.R. Payne, 35 and D.J. Wilbur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA6003-76-008, U.S.EPA, Dukuh, MN:125 p.	1976 test duration
	65 Arsenerous acid. Sodium salt										, normany						Cardwell,R.D., D.G. Foreman, T.R. Payne, and D.J. Wibur	Acute Toxicity of Selected Toxicants to Six Species of Fish	EPA-600/3-76-008, U.S.EPA, Dukuh, MN:125 p.	1270 411 02 1201
Arsenic 7784		Carsesius auratus	Goldfah	Lyenies		M PW	LAB	7 4	LCSO	NR mortality	mortality	Т.	36200 upt.	7.61	145	mol CaCO3 8	T Cone O B			1976
Americ 13464	74 Arsenous acid. Trisodium salt	Simocephalus serrulatus	Water Flex	1	NR I	M FW	LAB	2 d	ECSO	NC mortality	modality	т	1400 ugl.			NR 103		Contemination of the Freshweiter Ecosystem by Pesticides	J. Appl. Ecol. 3:33-44	1965 test duration
Amenic 13464	74 Arsenous acid, Trisodium salt	Daphnia pulex	Water Flex	-	N/R I	M FW	LAB	2 d	ECSO	INC mortality	mortality	т	1800 ugl.			NR 103	37 Cooe.O.B.	Contemination of the Freshwater Ecosystem by Pesticides	J. Appl. Ecol.3:33-44	1965 test duration
Americ 13464	74 Arsenous acid. Trisodium sait	Lepomis macrochinus	Busyll		NR I	M FW	LAB	2 d	ECSO	INC mortality	mortality	т	44000 upl			NR 103	37 Cope,O.B.	Contemination of the Freshwater Ecosystem by Pesticides	J. Appl. Ecol.3:33-44	1966 test duration
Amenic 13464	74 Arsenous acid. Trisodium sait	Oncorhynchus mykiss	Rainbow Trout		MR I	M FW	LAB	2 d	ECSO	NC mortality	mortality	т	35500 upl.			NR 103	37 Cooe.O.B.	Contemination of the Freshwater Ecosystem by Peaticides	J. Acol. Ecol.3:33-44	1965 test duration
Americ 13464	74 Arsenous acid, Trisodium salt	Pteronarcys californics	Stonetly	гутра	NR I	M FW	LAB	2 d	EC50	INC mortality	mortality	т	80000 ugt.			NR 103	37 Cooe.O.B.	Contemination of the Freshwater Ecosystem by Pesticides	J. Aeol. Ecol.3:33-44	1966 test duration
Amenic	Arsenite	Oncorhynchus mykiss	Rainbow Trout			fW	LAB	5 d	LCSO				18500 upl.	7.6	380	mpt. CaCO3	Rankin and Dison			1994
Amenic	Arsenie	Oncorhynchus mykiss	Rainbow Trout			FW	LAB	181 d	Chronic Toxicity Threshold		growth and eating		4900 ugl	7.6	380	mp1, CaCO3	Rankin and Dison			1994
Amenic	apdum arsenite	Gammanus fossarum	Amphipod			FW	LAB	10 d	LCSO				200 ug/L				Canivet. Chambon. Gibert			2001
Americ	and an arrante	Ninhamus rhanceborlanamis	Amehinod			FW.	1.65	10.4	1050				3970 uni				Canivet, Chambon, Gibert			2001
Americ	apdum arasnite	Assilus aquaticus	hrend			ew.	LAB	10 4	1050				2310 upl				Canivet, Chambon, Gibert			2001
America	apdum araenite	Hantanania sulnituras	Land.			- C	100	***	1000				2500				Canivet, Chambon, Gibert			7001 1011 1011
Americ			Palect			- rw	LAD	10.0	1000				1600 1091				Canivet, Chambon, Gibert			ZUI SEI ENGE
Amenic	acdum arxenite	Hydropsiche pellucidule	haect			FW	LAB	10.ld	LC50				2400 upl							2001 test species
Amenic	sodum arasnits	Physia fontinalis	Snall			fW	LAB	10 d	LC50		+		2200 upt.				Canivet, Chambon, Gibert			2001
Amenic	Arsenic oxide	Daphnia magna	Water Flea			FW	LAB	21 d	IC10				1300 ugl.				Tisler and Zagoro-Koncan 2002			2002
Amenic	Arsenic oxide	Daphnia magna	Water Flex	-	-	FW	LAB	21 d	C25		_		1900 upl.				Tisler and Ziscorc-Koncan 2002			2002 Horn in feature of ICSO
Amenic	Araenic ceide	Brachydanio rerio	Zebrafah			_		1 d	LC10				27300 upt.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Araenic celde	Brachydanio rerio	Zebrafah					2 d	LC10				24500 upl.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Arsenic calde	Brachydanio rerio	Zebrafah					3 d	LC10				22200 ugl				Tisler and Zasoro-Koncan 2002			2002 last duration.
Amenic	Arsenic oxide	Brachydanio rerio	Zebrafish					4 d	LC10				21900 ugt.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Arsenic oxide	Oncorhynchus mykiss	Rainbow Trout					2 d	LC10				15500 upt.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amanic	Areanir oxida	Oncorhynchus mykiss	Buinhow Torus					3.4	1.010				13400 uni				Tisler and Zasoro-Koncan 2002			2002 test duration
Amorto	Arsenic celde	Oncorhynchus mykiss	Rainbow Trout						1010				131001				Tisler and Zaporo-Koncan 2002			2002 test describe
		Control of the Contro	24.00					1.									Tisler and Zagoro-Koncan 2002			
		and the second	Zehrafah										32700 upl							
Arsenic	Arsenic oxide	Brachydanio rerio	Zeoranan					_ d	LUSO				32700 light				Tisler and Zasoro-Koncan 2002			2002 test duration
Amenic	Arsenic oxide	Brachydanio rerio	Zebrafah					3 d	LCS0				28500 upl.				Tisler and Zagoro-Koncan 2002			2002 test duration
Americ	Arsenic celde	Brachydanio rerio	Zebrafah					4 d	LCSO				25100 upl				Tisler and Zazoro-Koncan 2002			2002 test duration
Arsenic	Arsenic oxide	Oncorhynchus mykiss	Rainbow Trout					2 d	LC50				23200 ugt.				Tisler and Zasoro-Koncan 2002			2002 test duration
Amenic	Arsenic oxide	Oncorhynchus mykiss	Rainbow Trout					3 d	LC50				17700 ugl.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Arsenic calde	Oncorhynchus mykiss	Rainbow Trout					4 d	LCSO				15300 upl				Tisler and Zagoro-Koncan 2002			2002 test duration
Arsenic	Arsenic oxide	Brachydanio rerio	Zebrafah					1 d	LC90				44800 ugt.				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Arsenic celde	Brachydanio rerio	Zebrafah					2 d	LCSO				43600 ugl				Tisler and Zagoro-Koncan 2002			2002 test duration
Amenic	Arsenic oxide	Brachydanio rerio	Zebrafah					3 d	LC90				36700 ugt				Tisler and Zagoro-Koncan 2002			2002 test duration
Americ	Arsenic oxide	Brachydanio rerio	Zebrafah					4 d	LCSO				35000 ug/L				Tisler and Zagoro-Koncan 2002			2002 test duration
Americ	Arsenir neide	Oncodynatics making	Rainbow Trout					2 d	1.050				34700 upl				Tisler and Zagoro-Koncan 2002			2002 lest duration
America	According to the Control of the Cont	Oncorhynchus mykiss	Bainhow Trout						1.000				27400				Tisler and Zagoro-Koncan 2002			2002 lest destina
Americ	CAN-C 20020		Rainbow Trout										2200 001							AUX MITOLINOS
Americ	Artenic catde	Oncorhynchus mykiss						4.6	LLSO				nel001upl				Tisler and Zaporo-Koncan 2002 Vocks, R.W., K.L. Sears, J.J. O'Tools, and	Growth Responses of Selected Freshwater Algae to Trace Elements and Scrubber Ash Sluxy Generated by Coal-Fin	nd .	2021 test duration
Americ 7778	(30) Areanic acid (HSAsO4) Disortion salt	Scenedosmis acidis var acidis	Green Alman	I.	I e	II FW	1.48	14 4	ECSD	NB prouth	meneral	T					(2 R.B. Wildman	Power Phints	Water Res. 14(2): 141-150	1980