N40003.AR.002599
PUERTO RICO NS
5090.3a

RESOURCE CONSERVATION AND RECOVERY ACT PART B HAZARDOUS WASTE FACILITY PERMIT APPLICATION VOLUME 3 OF 4 APPENDIX L7 FOR ATLANTIC FLEET WEAPONS TRAINING FACILITY NAVAL ACTIVITY PUERTO RICO
6/28/1993
ENVIRONMENT AND SAFETY DESIGNS, INC

AFWTF Vieques Island 93-3

RCRA PART B
HAZARDOUS WASTE FACILITY
PERMIT APPLICATION
VOLUME III, APPENDIX L7

for

ATLANTIC FLEET WEAPONS TRAINING FACILITY
VIEQUES ISLAND, PUERTO RICO

Prepared for

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA

Prepared by

ENVIRONMENTAL AND SAFETY DESIGNS, INC.
5724 SUMMER TREES DRIVE
MEMPHIS, TENNESSEE 38134
(901) 372-7962

JUNE 28, 1993

RCRA PART B
HAZARDOUS WASTE FACILITY
PERMIT APPLICATION
VOLUME III, APPENDIX L7

for

ATLANTIC FLEET WEAPONS TRAINING FACILITY
VIEQUES ISLAND, PUERTO RICO

Prepared for

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK, VIRGINIA

Prepared by

ENVIRONMENTAL AND SAFETY DESIGNS, INC.
5724 SUMMER TREES DRIVE
MEMPHIS, TENNESSEE 38134
(901) 372-7962

JUNE 28, 1993

APPENDIX L-7

1990 WATER QUALITY STUDY AT AFWTF VIEQUES
(HAYES, SEAY, MATTERN, AND MATTERN, INC.)

4705 Columbus Street Loop
Suite 301
Virginia Beach, Virginia 23462
(804) 490-2547
FAX (804) 490-1368

Hayes, Seay, Mattern & Mattern, Inc.

ARCHITECTS • ENGINEERS • PLANNERS

Public Works Officer
OIC, Facilities Support Contracts
P.O. Box 3021, Building 31
U.S. Naval Station, Roosevelt Roads
FPO Miami 34051-3001

Attention: Edgardo Ramos
Environmental Engineering Division

Re: Water Quality Study at the AFWPF, Vieques
Contract N62470-87-C-9009
(A & E Commission No. 1735C)

Dear Mr. Ramos:

At your request, I have enclosed one additional copy of the Engineering Report (Volume I) and accompanying Appendices (Volumes II through IV) for the above-referenced project. In the event that you wish to make additional copies, I have left the enclosed copy unbound.

I apologize for the delay in getting this additional copy to you. If you have any questions or problems, please give me a call at (804) 499-2391.

Sincerely,

HAYES, SEAY, MATTERN & MATTERN, INC.

Martin L. Mitchell

Martin L. Mitchell
Project Manager

enclosures: as indicated

cc: David Cotnoir, LANTDIV

Virginia Beach, VA
Roanoke, VA
Rockville, MD
Greensboro, NC
Mobile, AL
Raleigh, NC
Spartanburg, SC
Florence, SC
Charlotte, NC
Lynchburg, VA

TABLE OF CONTENTS

VOLUME I

ENGINEERING REPORT

SECTION		PAGE
I.	EXECUTIVE SUMMARY	1
II.	PURPOSE	4
III.	BACKGROUND	
	A. Physical Description and Biological Features	5
	B. The Navy in Vieques	7
	C. AFWTF Range Usage	10
	D. History of NPDES Permit	16
	E. Water Quality Study	18
IV.	PROJECT APPROACH	21
V.	MONITORING DATA COLLECTION METHODOLOGY	
	A. Sample Collection	22
	B. Sample Analysis	24
VI.	EVALUATION OF MONITORING DATA	
	A. TAMS, 1979, Water Quality Study	28
	B. Correlation Analysis	34
	C. Water Quality Over Time	41
	D. Water Quality and Rainfall	43
	E. Previous Ordnance Studies	44
	F. Natural Background Concentration (NBC) Determination	46
	G. Water Quality & Commonwealth Water Quality Standards	51
VII.	CONCLUSIONS	56
VIII.	RECOMMENDATIONS	57
IX.	BIBLIOGRAPHY	60
X.	WATER QUALITY DATA COMPILATION APPENDICES 1 THROUGH 4	VOLS II-IV

TABLE OF CONTENTS

VOLUME II

ENGINEERING REPORT APPENDIX

APPENDIX

1. PRELIMINARY DATA COMPILATION FROM OCTOBER 1983 TO SEPTEMBER 1985.

2. STATISTICAL COMPILATION OF WATER QUALITY DATA FROM STRAY STATIONS RW14 AND RW15 JANUARY, 1986 THROUGH NOVEMBER, 1988.

TABLE OF CONTENTS

VOLUME III

ENGINEERING REPORT APPENDIX

APPENDIX

3. CORRELATION ANALYSIS: ORDINANCE USAGE VERSUS WATER QUALITY.

TABLE OF CONTENTS

VOLUME IV

ENGINEERING REPORT APPENDIX

APPENDIX

4. NATURAL BACKGROUND CONCENTRATION (NBC) DETERMINATIONS.

LIST OF FIGURES

ENGINEERING REPORT

FIGURE		PAGE
1.	Project Location	6
2.	Project Site	9
3.	Vieques Inner Range	11
4.	Vieques Live Ordnance Usage	37

LIST OF TABLES

ENGINEERING REPORT

TABLE		PAGE
1.	NGFS Ordnance Types	13
2.	Air-to-ground Ordnance Types	14
3.	Explosive Compositions	15
4.	Times of Certain Activities Occurring During Stray Station Sampling - 1988	20
5.	Sample Location Descriptions	23
6.	Parameters and Analytical Methods	25
7.	Vieques Water Quality: May 31 to June 1, 1978	29
8.	Ordnance Usage at AFWTF Vieques, Puerto Rico	35
9.	Correlation Factors	39
10.	NBC Determination	50
11.	NPDES Permit Limits and Environmental Quality Board Water Quality Standards	52

ENGINEERING REPORT
VOLUME I

WATER QUALITY STUDY
AT THE
U. S. ATLANTIC FLEET WEAPONS TRAINING FACILITY

VIEQUES ISLAND, PUERTO RICO

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

CONTRACT N62470-87-C-9009
(A & E COMMISSION NO. 1735C)

SEPTEMBER 1990

I. EXECUTIVE SUMMARY

In suit file against the U.S. Navy by the Commonwealth of Puerto Rico and others, it has been alleged that the Navy's shelling and bombing activities at the Inner Range of the Atlantic Fleet Weapons Training Facility (AFWTF) on Vieques Island have led to adverse environmental impacts. Among the alleged impacts is violation of federal and commonwealth water quality standards for waters on and around the Inner Range of the AFWTF at Vieques.

In 1981, the Environmental Protection Agency (EPA) drafted and proposed to issue a National Pollutant Discharge Elimination System (NPDES) permit for the Navy's activities at the Inner Range of the AFWTF. However, the proposed NPDES permit was appealed at several levels of judicial appeal by the Commonwealth of Puerto Rico. After lengthy court proceedings, the Environmental Protection Agency issued a final NPDES permit for the Navy's activities in October of 1984. To substantiate impacts to water quality (or lack thereof) and to provide information necessary for issuance of a Water Quality Certification by the Puerto Rico Environmental Quality Board, the 1981 version of the NPDES permit required that a program be designed and implemented to monitor the water quality of the marine environment in and around the AFWTF.

The water quality monitoring program specified in the NPDES permit was applied to thirteen sites on and around the Inner Range of the AFWTF (ten in the coastal waters offshore of the range and three in inland lagoons in the area). Two additional samples were collected each month at "stray ordnance sites". The stray data was gathered from sites where stray ordnance fell into waters

surrounding Vieques and exploded. Water samples at the 13 sites were taken once a month through September 1985. Stray samples were taken twice a month, when available, and were to continue throughout the permit period.

The purpose of this study has been to evaluate the water quality data base with respect to activities at AFWTF Inner Range and to address any impact of ordnance usage on water quality. The data base has also been evaluated with respect to the Puerto Rico Environmental Quality Board (EQB) standards (adopted April 1988) and the original NPDES permit limits. In doing so, appropriate natural background water quality concentrations for waters surrounding the AFWTF have been determined. The study then made recommendations regarding the continuation of the water quality monitoring program and any need for future investigation.

A correlation analysis performed as part of this investigation has indicated that there is no significant correlation between ordnance usage and water quality offshore of the Inner Range. This finding of no significant correlation is supported by information set forth in a 1979 Environmental Impact Report addressing AFWTF activities and the results of previously conducted ordnance chemistry studies.

Natural background concentration (NBC) determinations also performed as part of this investigation indicate that natural background concentrations for marine waters offshore of the Inner Range (1) naturally exceed Water Quality Standards adopted by the Puerto Rico Environmental Quality Board and limits specified in the NPDES Permit for a number of parameters, and (2) do not significantly differ from natural concentrations measured in marine waters 1 kilometer offshore of Vieques.

Based on an evaluation of previous investigations and the results of the statistical analyses performed as part of this investigation, it is recommended that (1) the water quality monitoring program specified by the NPDES permit be terminated, (2) the standards of both programs be reassessed with the goal of developing standards which more appropriately reflect naturally occurring water quality of marine waters surrounding Vieques, and (3) the attainability of EQB Water Quality Standards be assessed from the perspective of presently available state-of-the-art analytical methods.

II. PURPOSE

The eastern end of Vieques Island, Puerto Rico serves as the Inner Range for the U.S. Navy's Atlantic Fleet Weapons Training Facility (AFWTF). This installation is used for naval gunfire support practice and air to ground ordnance practice. Although the targets for all training exercises are located on the island, ordnance occasionally lands in surrounding coastal waters.

In 1978, the Commonwealth of Puerto Rico filed suit against the U.S. Navy for purported water pollution allegedly resulting from the Navy's discharge of ordnance into the waters surrounding Vieques. The basis of the suit was an alleged violation of the Clean Water Act of 1977. Lengthy legal proceedings ensued and a resulting judicial decision in 1982 required the Navy to file for and obtain a National Pollutant Discharge Elimination System (NPDES) permit. In October of 1984, the Environmental Protection Agency (EPA) issued a permit for operations at the AFWTF. Monthly water quality monitoring on and around Vieques Island was required by the permit for the purpose of determining the impact of ordnance discharges on water quality. For a period of one year beginning with the effective date of the permit, sampling was conducted at thirteen fixed stations and two variably located stations (i.e. where stray ordnance would land in the water). From October of 1985 to the present, the monitoring program continued with samples taken only from stray sites, twice each month. Monitoring data, as well as ordnance usage records, have been reported to the EPA on a quarterly basis since permit issuance. The water quality data base also includes results from monthly sampling between October of 1983 and September of 1985 as well as from the summer of 1978.

The purpose of this study is to evaluate the water quality data base with respect to range usage and to address any impact of range activity on water quality. The data base will also be evaluated with respect to the Puerto Rico Environmental Quality Board (EQB) standards (adopted April 1988) and original NPDES permit limits. In doing so, appropriate natural background water quality concentrations in the water surrounding the AFWTF will be determined. The study will then make recommendations regarding the continuation of this monitoring program and any need for future investigation.

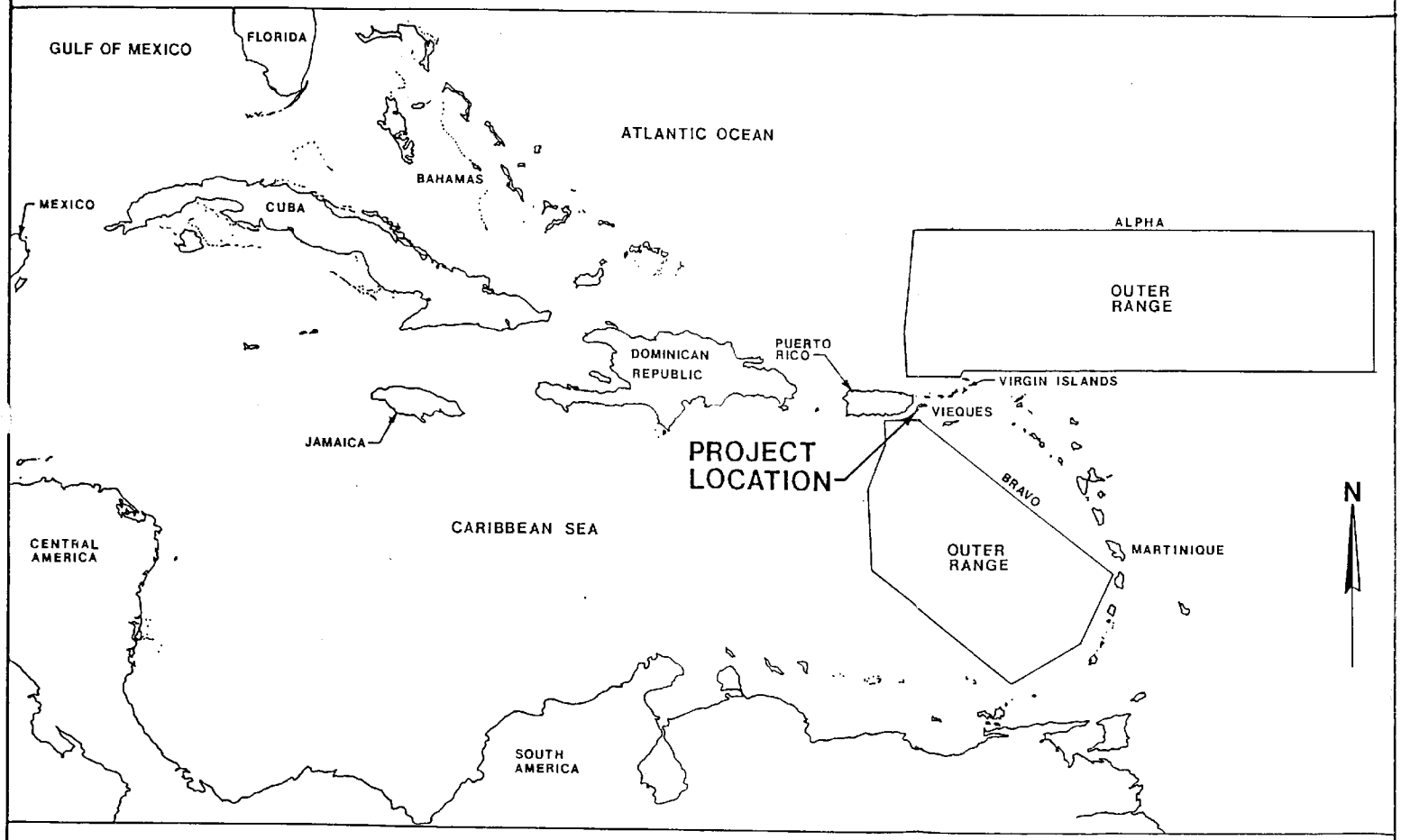
III. BACKGROUND

A. Physical Description and Biological Features

The island of Vieques is located approximately 7 miles south of the southeastern coast of Puerto Rico and 22 miles southwest of St. Thomas, U.S. Virgin Islands (Figure 1). The island is oriented along an east-west axis and is nearly 20 miles long and 4.5 miles wide at its widest point. Vieques has a total area of 33,088 acres with an average elevation of 75 meters (running from sea level to the highest point of 301 meters at Monte Pirata). Topography ranges from sandy beaches (with both alluvial siliceous sand beaches and marine-deposited calcareous sand beaches) and coastal lagoons to the hilly central portion of the island. There are no potable surface water supplies on Vieques. Groundwater was the sole water supply on Vieques until a water line from Puerto Rico was completed in 1978).

The climate on Vieques is typical of the tropical Caribbean climatic regime. The average annual temperature is 80°F and remains fairly constant year round. The island receives approximately 45 inches of rain per year, with the

WATER QUALITY STUDY
U.S. ATLANTIC FLEET
WEAPONS TRAINING FACILITY



PROJECT LOCATION

HSMM

FIGURE 1

ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND

heaviest rainfall occurring in September, October, and November (Benitey, 1976). Trade winds provide the dominant wind pattern with nearly constant easterly breezes throughout the year (Calvesbert, 1974).

Most of the vegetation on Vieques is characteristic of subtropical dry zones. Major vegetation types represented include beach scrub, evergreen scrub, thorn scrub, lowland forest, upland forest, and mangrove forest. In the early 1900's sugarcane cultivation covered much of the available arable land, however, few crops are presently grown. At present, the primary pressure on vegetation from grazing by cattle.

Wildlife diversity is relatively limited on Vieques. Dominant members of the fauna are birds, with somewhat fewer representatives of reptiles, amphibians, and mammals. Of the wildlife species living on and around Vieques, the U.S. Fish and Wildlife Service has designated the Caribbean manatee, brown pelican, leatherback turtle and hawksbill turtle as "endangered", and the green turtle and loggerhead turtle as "threatened."

B. The Navy in Vieques

During World War II the Navy began a series of land acquisitions in Vieques as part of the war effort to protect the Allied fleets. Starting in late 1941, the Navy acquired 21,020 acres on the island of Vieques. More land was later acquired to yield a total holding of 25,353 acres by 1950. Ninety-two percent of the total acquisitions were acquired from 10 principal ownerships, the rest from small landowners. Navy land acquisitions resulted in the relocation of 4,200 to 5,000 people (40 to 50% of the total population), many of whom were resettled with Navy assistance. Many resettlements were to Navy land not being

used for naval operations (the Martineau, Montesanto and Santa Maria resettlement tracts). Several thousand acres of additional Navy land was made available for cattle grazing (Figure 2).

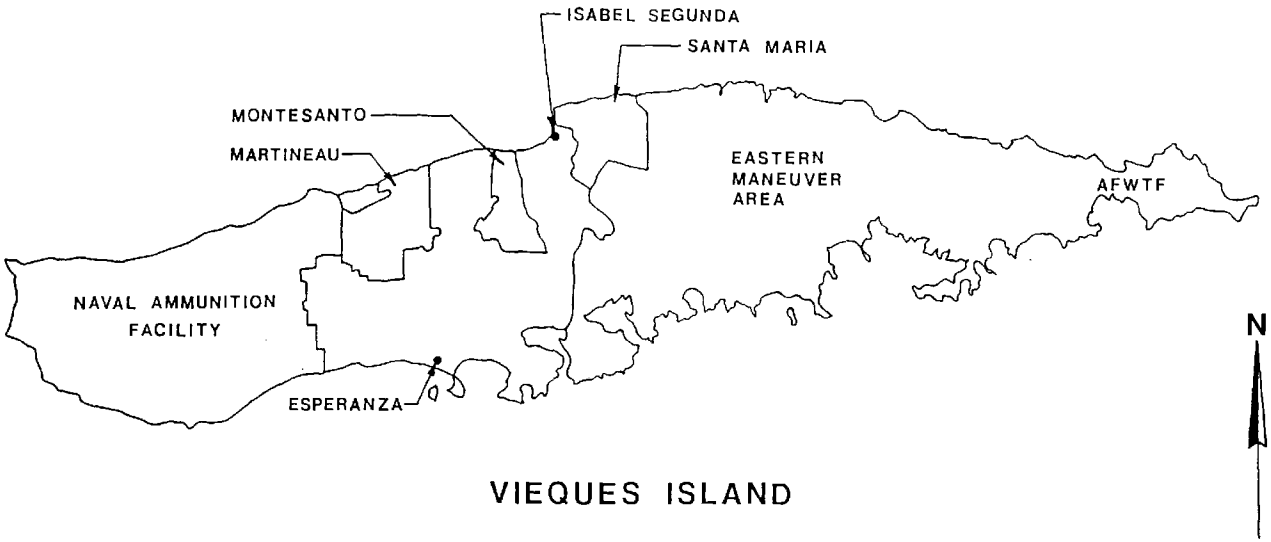
In 1960 the Navy established targets on Vieques. With the Cuban missile crisis of 1962, its position as a strategic military installation became critical. The Navy sought to acquire additional land, particularly along the south coast to prevent development which might interfere with Navy activities. This did not occur. In 1971, the Navy established the present targets on Vieques and began holding Inner Range training there.

From 1968 until 1977, the General Services Administration and the Governor's Real Estate Committee negotiated for the return of the resettlement areas and for easements sought by the Navy along the south coast. These issues became entangled in several other issues including the transfer of other federal properties, the Puerto Rican status question, and Culebra.

Prior to 1975, the Navy had part of the Inner Range located on Culebra, a small island 9 miles north of Vieques. Naval activities included air to ground missile targets and naval gunfire support targets. Only 700 people lived on Culebra, but there was a great deal of protest involving the Navy's operations there. This led to the complete withdrawal of the Navy from Culebra and its cays in 1975. Vieques, with its population of approximately 8,000, was left as the sole functioning portion of the Inner Range.

As of 1975, the Navy owned 25,232 acres on Vieques, having donated some for a municipal airport and public high school. The components of this land included the Naval Ammunition Facility (on the western portion of the island), the three

WATER QUALITY STUDY
U.S. ATLANTIC FLEET
WEAPONS TRAINING FACILITY



ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND

PROJECT SITE

HSMM

FIGURE 2

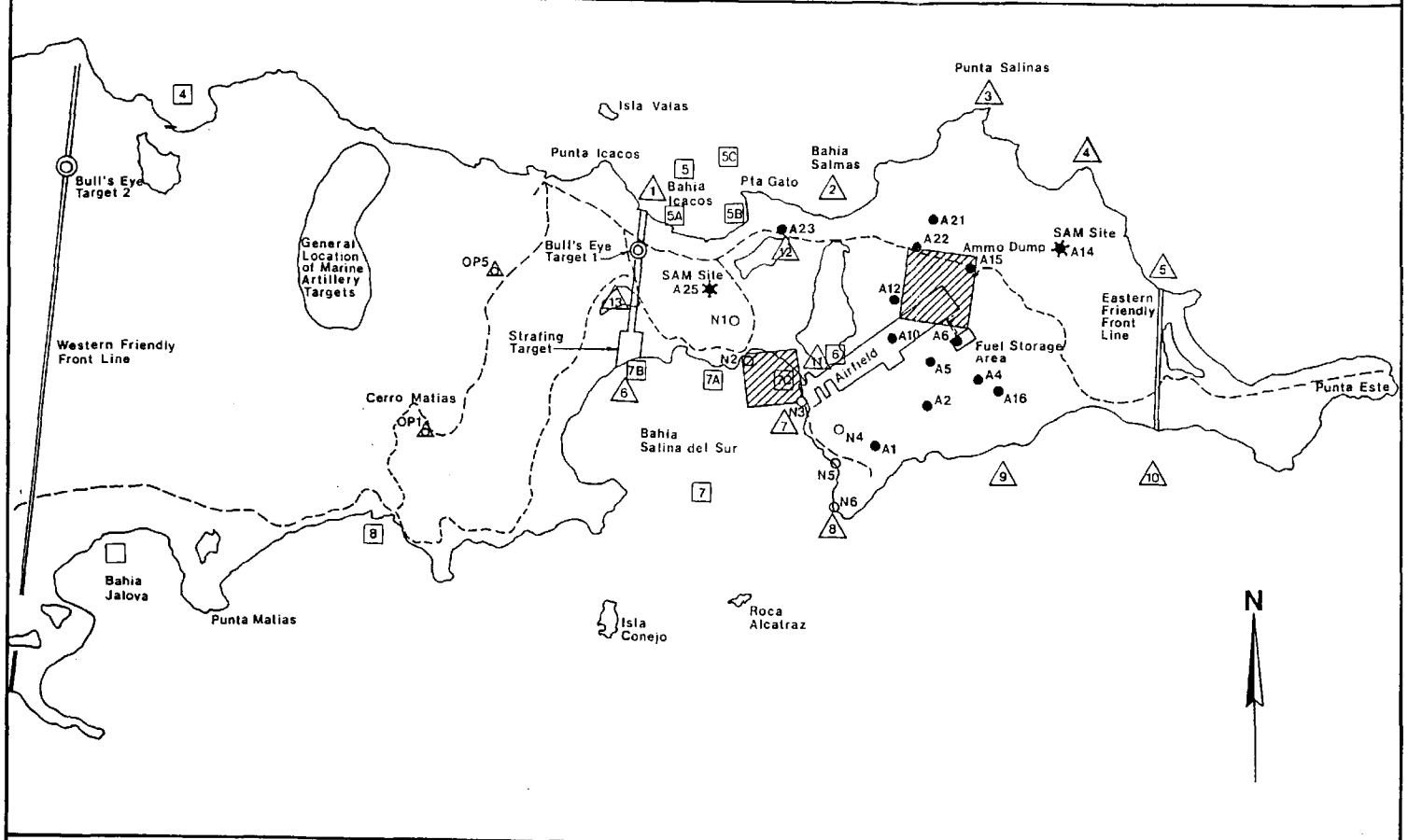
resettlement tracts, and the maneuver and impact area (on the eastern portion of the island, including Camp Garcia), for Marine training, and the Inner Range targets. The remaining land, belonging to the Viequens, was in the central portion of the island (Figure 2).

C. AFWTF Range Usage

Naval operations on Vieques are comprised of (1) the Naval Ammunition Facility (NAF), primarily a storage facility on the western part of the island; (2) the Atlantic Fleet Weapons Training Facility (AFWTF) on the eastern tip, and (3) the eastern maneuver area (EMA) adjacent to and west of the AFWTF. All function under the joint commands of Fleet Air Caribbean, Naval Activities Caribbean, and Antilles Defense Command, who are headquartered at the Roosevelt Roads Naval Station on the mainland of Puerto Rico. A related facility is the Outer Range of AFWTF. The Outer Range consists of two vast sea areas (totaling 194,000 square miles of the Caribbean Sea and Atlantic Ocean) utilized for surface-to-air, surface-to-surface, air-to-surface, and air-to-air missile exercises, and surface and anti-aircraft gunnery exercises. The AFWTF also maintains anti-submarine warfare exercises on the underwater range west of St. Croix and an electronics warfare exercises range.

On Vieques, the EMA and AFWTF lands make up the Inner Range (Figure 3). The AFWTF land includes the impact area used for fleet training in Naval gunfire support (NGFS), air-to-ground ordnance delivery (ATG), air-to-surface mine delivery, and ground forces artillery/tank firing. The facilities include an observation post complex on Cerro Matias (the highest point at the eastern end of Vieques), small observation posts for TV cameras near the bull's-eye targets, one NGFS target area (within the air impact area), one air impact area for live

WATER QUALITY STUDY
U.S. ATLANTIC FLEET
WEAPONS TRAINING FACILITY



LEGEND

- LAGUNA
- NAVAL GUNFIRE SUPPORT (NGFS) AREA TARGET
- A AIR-TO-GROUND (ATG) TARGET
- N NAVAL GUNFIRE SUPPORT (NGFS) TARGET
- WATER SAMPLING SITE
- 1978 TAMS WATER QUALITY SAMPLING

SCALE

500 0 500 METERS
500 0 500 YARDS

ATLANTIC DIVISION
NAVAL FACILITIES
ENGINEERING COMMAND

VIEQUES INNER RANGE

HSMM

FIGURE 3

and inert aerial bombardment, two bull's-eye targets, and a surface impact area. The NGFS activities use six point targets and two area targets. There are over 20 ATG targets including two electronically scored bull's-eye targets, an acoustically scored strafing target, and an air impact area for live bombing, which contains realistic targets such as a mock air strip, surface to air missile (SAM) launching site, mock fuel dump, and convoy.

A wide variety of ordnance types are utilized at the Inner Range (Tables 1 & 2). The major explosives used in these bombs include aluminized (tritonal, M-6, and torplex) and C-M-N-O (TNT, composition B, octol, tetryl, explosive D, and composition A-3) types (Table 3).

Not all of the bombs used in training exercises carry live explosives. On average for NGFS, only about 18% of the bombs are "live", while another 32% are "inert" (filled with sand or concrete in place of the explosive). The remaining 50% are practice bombs which weigh only 25 ponds and carry no explosives. ATG bombs are 15% "live" (roughly 5% of which are duds) and 15% "inert", and 70% practice.

The amount of range use varies with the exercises taking place and, hence, is not constant from month to month. Typical peaks in bombing activity occur in February and August, with lesser peaks in April, May, November, and December. Occasionally, some months have no activity. The amount of "stray" ordnance landing in the water varies proportionately with the amount of ordnance fired. In 1979, it was estimated that approximately 40% of the NGFS ordnance and 4% of the ATG ordnance fell in the waters surrounding the Inner Range (TAMS, 1979). Since that time, all water targets have been removed and a directive has been issued to all range users that prohibits the intentional discharge of ordnance

TABLE 1

NGFS ORDNANCE TYPES

TYPE	TOTAL WEIGHT OF PROJECTILE (LBS.)	WEIGHT OF EXPLOSIVES (LBS.)
5 INCH/54[1]/	63.0	3.8
5 INCH/38[1]/	55.0	3.3
4.5 INCH/38	50.0 (APPROX.)	3.0 (APPROX.)
3 INCH/50	13.0	0.74

* 1/ THE ILLUMINATION ROUNDS FOR THESE SIZES CONTAIN 6.2 LBS OF BLACK POWDER

(TAMS 1979, IN: U.S. Navy Explosive Ordnance Disposal Office)

TABLE 2

AIR-TO-GROUND ORDNANCE TYPES

TYPE	TOTAL WEIGHT OF PROJECTILE, LBS.	WEIGHT OF EXPL., LBS.
MK. 14 (LIVE, HIGH EXPLOSIVE)	411-514	250
MK. 16 (PRACTICE BOMB)	870-1000	50-150
MK. 24 (PARACHUTE FLARE)	26	18
MK. 45 (PARACHUTE FLARE)	28	17.6
MK. 76 (PRACTICE BOMB)	25	0.03
BDU-33 (PRACTICE BOMB)	479-539	75 (GAL.NAPALM)
MK. 77 (FIRE BOMB)	650	94 (GAL.NAPALM)
MK. 81 (LIVE, HIGH EXPLOSIVE)	250	100
MK. 81 (INERT)	250	0
MK. 82 (LIVE, HIGH EXPLOSIVE)	500	192
MK. 82 (INERT)	500	0
MK. 83 (LIVE, HIGH EXPLOSIVE)	1000	455
MK. 83 (INERT)	1000	0
MK. 84 (LIVE, HIGH EXPLOSIVE)	2000	945
MK. 84 (INERT)	2000	0
MK. 118 (ROCKEYE)	1.3	0.38
2.75 INCH ROCKET (INERT)	6.5	0
5 INCH ZUNI ROCKET (INERT)	56	0
20mm (MACHINE GUN, INERT)	0.56	0

(TAMS 1979, In: U.S. Navy Explosive Ordnance Disposal Office)

TABLE 3

EXPLOSIVE COMPOSITIONS

TNT	TRINITROTOLUENE	$C_7H_5N_3O_6$
RDX	CYCLOTRIMETHYLENE TRINITRAMINE	$C_3H_6N_6O_6$
HMX	CYCLOTETRAMETHYLENE TETRANITRAMINE	$C_4H_8N_8O_8$
TETRYL	2,4,6 TRINITROPHENYL METHYLNITRAMINE	$C_7H_5N_5O_8$
EXPLOSIVE D	AMMONIUM PICRATE	$C_6H_6N_4O_7$
TRITONAL	80.0% TNT	
	20.0% ALUMINUM	
H-6	44.2% RDX	
	29.3% TNT	
	20.6% ALUMINUM	
	4.7% WAX	
	1.2% MISCELLANEOUS	
TORPEX	42.0% RDX	
	40.0% TNT	
	18.0% ALUMINUM	
COMPOSITION B	59.5% RDX	
	39.5% TNT	
	1.0% WAX	
OCTOL	70.0% HMX	
	30.0% TNT	
COMPOSITION A-3	91.0% RDX	
	9.0% WAX	

(FROM: YOUNG, 1978)

into the waters. Recent contact with the Range Officer (Patten, personal communication) at the AFWTF disclosed that presently, no more than 1% of all ordnance directed at the Inner Range lands in the water.

The Navy requires all ships assigned shore bombardment/Naval gunfire support operational capability to maintain NGFS qualifications. AFWTF is responsible for qualifying the approximately 96 ships of the Atlantic Fleet. In addition to U.S. Navy ships, the facility is also used by allied forces (especially NATO), including Germany, Great Britain, Canada, and Holland. Successful completion of five fire missions, designed to test different aspects of the ships' abilities, is required for a U.S. ship to meet its annual qualifications. Ships are normally scheduled for two days on the range to complete the five missions.

The AFWTF also provides a training and qualifying facility for ATG weapons delivery. U.S. units are required to qualify every 12 to 13 months. In addition to the U.S. Navy and U.S. Marine Corps, the facility is used by Great Britain and the Puerto Rico Air National Guard. Air wings may be shore-based, but are more commonly carrier-based, and their practices last from ten to fourteen days. There is a wider variety of ATG ordnance delivery than NGFS (Table 2).

D. History of NPDES Permit

In March 1978, the governor of Puerto Rico and several other concerned parties (including Vieques fishermen's groups) filed suit against the Secretary of Defense and other top Navy officials (collectively referred to as "the Navy"). This suit came to be known as Romero-Barcelo vs. Brown. Puerto Rico alleged in the suit that the Navy's activities at Vieques cause irreparable damage to the

island's ecology and inhabitants. Specific claims made by Puerto Rico included allegations that the Navy's activities pollute the island's air and coastal waters, threaten irreplaceable historical sites, and diminish the productivity of fishing and agricultural resources. Puerto Rico also claimed that the Navy transferred certain training activities from Culebra to Vieques, contrary to congressional and executive directives.

After lengthy court proceedings, the District Court ordered the U.S. Navy to prepare an environmental impact statement, obtain a determination on the eligibility of certain historical and prehistorical sites for inclusion on the National Register of Historic Places, and obtain an NPDES discharge permit. Except for these points, the court found in the Navy's favor and refused to suspend training activities on Vieques. The environmental impact statement was prepared, and historic and prehistoric places were listed in compliance with court directives. However, obtainment of the discharge permit proved to be a more difficult issue.

In accordance with court directives, the Navy applied for a National Pollution Discharge Elimination System (NPDES) permit with the Environmental Protection Agency (EPA). EPA issued the NPDES Permit in May 1981. Part of the requirements of the NPDES Permit included water quality monitoring. In January 1981, the Commonwealth of Puerto Rico appealed the decision of Romero-Barcelo vs. Brown. The appeal was heard in the First Circuit U.S. Court of Appeals, and no major changes were made in the decision. Again, enjoining of the Navy's training activities was denied. The Commonwealth of Puerto Rico again appealed, and the case was heard before the U.S. Supreme Court in October 1981, with virtually the same results. When the NPDES permit came before the Puerto Rico Environmental Quality Board (EQB) for final issuance of a Section 401 Water Quality Certificate

(WQC), the EQB denied the permit (in December 1981), in what was then the only denial of an NPDES Permit Certification anywhere. The Navy then filed a Petition of Reconsideration (for the WQC) with the EQB.

In February 1982, the Supreme Court reheard the case (again, no major changes) and the EQB denied the Petition of Reconsideration. The Navy again appealed denial of the WQC in April 1982. Beginning in May 1982, the EPA requested an amendment to the Clean Water Act to exempt facilities such as Vieques because of their unusual operations and "pollutants" (i.e. stray ordnance). This request is still awaiting Federal action.

In compliance with NPDES permit requirements, the Navy began monitoring water quality at several sites around Vieques in September 1983. In October 1983, the EQB issued a Certification requiring more monitoring than the EPA had required. EQB's Certification also required submittal of an Erosion Control Plan. The plan was completed in October of 1985 and has since been implemented by the Navy.

The final NPDES permit was posted in the Federal Register in October 1984. A 50% Report on the Water Quality Monitoring was completed in April 1985 (Goodwin, 1985). Sampling at the 13 fixed stations was terminated in September, 1985.

E. Water Quality Study

To determine what effect the Navy's use of the Inner Range has on water quality around Vieques (as required by the NPDES permit), a water monitoring program was begun in September 1983. Thirteen sites around the range were chosen

as sample sites: ten in the coastal waters off of the range and three in inland lagoons in the area (Figure 3). Two additional samples were collected each month at "stray ordnance sites". The stray data was gathered from sites where stray ordnance falling into waters surrounding Vieques exploded. Water samples at the 13 sites were taken once a month through September 1985. Stray samples were taken twice a month, when available, and were to continue throughout the permit period.

Sampling was accomplished from a boat at all coastal sites. Water samples were suctioned from mid-depth with a peristaltic pump using inert tubing. Dissolved oxygen and temperature readings were taken using an extended probe connected to the suction pipe. Chlorides and pH readings were taken from sample bottles on the boat. The first "sample" at each site was used to rinse the sampler and sample bottles, and the second sample was stored for analysis. Samples were immediately shipped off to the analyzing laboratory in Newport News, Virginia to arrive for analysis within 24 hours of collection. Sampling at "stray" sites was similar, but the sample was taken as soon as the area was deemed safe. The boat reached the site of recorded impact, averaging about 30 minutes (Table 4), in transit.

Thirty parameters were quantified in the samples: arsenic, barium, boron, cadmium, chromium (hexavalent), chromium (total), copper, iron, lead, manganese, mercury, selenium, silver, zinc, chlorides, cyanide, fluoride, ammonia, nitrate plus nitrite, nitrogen, sulfide, sulfate, phenols, turbidity, oil, color, total suspended solids, temperature, dissolved oxygen, and pH.

TABLE 4

TIMES OF CERTAIN ACTIVITIES OCCURRING DURING

STRAY STATION SAMPLING - 1988

DATE DATE	ORDNANCE HITS H_2O	SAMPLERS ARRIVE	TIME DIFF.	SAMPLES TAKEN	TIME DIFF.	SAMPLERS DEPART
1/15/88	1030	1103	33	ND	ND	1118
1/22/88	1023	1038	15	ND	ND	1049
4/5/88	1135	1150	15	ND	ND	1200
4/7/88	1033	1043	10	ND	ND	1050
5/16/88	1029	1035	6	1038	3	1040
5/18/88	1230-1255	1300		1310	10	1320
6/24/88	1140	1242	62	1245	3	1254
7/28/88	1235	1300	25	1301	1	1309
8/3/88	1221	1230	9	1230	1	1239
8/4/88	0815	0915	60	0917	2	0928
9/6/88	1120	1142	22	1159	15	1210
10/4/88	1410	1450	40	1455	5	1505
10/5/88	0855	0937	42	0940	3	0950
11/1/88	1245	1305	20	1309	4	1319
11/2/88	0935	1015	40	1020	5	1030
12/6/88	1118	1126	8	1141	15	1147
12/7/88	0953	1028	35	1035	7	1045
		AVG.	28 MIN.		AVG. 6 MIN.	

ND = NO DATA

IV. PROJECT APPROACH

In order to evaluate water quality data collected around Vieques from 1983 to 1988, relevant NAVSTA and LANTDIV historical data were reviewed and the environmental impact statement (TAMS, 1979) was examined. A review of the analytical laboratory methodology which was used for the period of record was also conducted. In addition, the actual collecting of samples was observed at Vieques to further aid in evaluation of sampling methodology. All conferences and telephone calls regarding the project were summarized to avoid confusion and facilitate complete documentation.

Findings presented in this report were derived in part from the results of a statistical correlation analysis. This correlation analysis compared range usage to water quality monitoring data for 23 water quality parameters having sufficient sample size to support such analyses. In addition to the correlation analysis, analyses of natural background concentration (as defined by the Puerto Rico Environmental Quality Board) was conducted for twenty-three parameters, again having sufficient sample size to support such analyses. The resulting natural background concentrations were then compared to the EQB water quality standards (adopted in 1988), the original NPDES permit limits and a singular water quality data set from stations located 1 kilometer offshore. Results of previous ordinance studies (by others) were also evaluated.

Based on the aforementioned criteria, recommendations have been formulated regarding the existing water quality monitoring program and possible program direction for future investigation.

V. MONITORING DATA COLLECTION METHODOLOGY

A. Sample Collection

To determine the water quality of coastal waters off the Inner Range on Vieques Island, fifteen sample sites were established. Ten were located on the coasts of the range: five on the north coast and five on the south coast, running west to east. Three sampling sites were established at lagoon locations. The final two "sites" were not fixed in position, but consisted of samples taken at the explosion of stray ordnance as soon as possible after the explosion (Figure 3). Locations of these sample locations are provided in Table 5.

Samples were collected once a month by Navy personnel from the Roosevelt Roads Naval Station Environmental Engineering Division between October 1983 and September 1985 (subsequently only two "stray" sites a month were tested). A depth gauge determined mid-depth at the sites and samples were collected from this point via a pump and tygon tubing. Sample water was used to rinse the tubing and sample bottles prior to collection of the samples. Six bottles were filled and the pH measured for each sample: two 500 ml glass (for phenols); two 500 ml plastic; two 250 ml plastic. Chloride readings were occasionally taken at the sample sites for dissolved oxygen (DO) analyses calibration (due to differences in the salinity of lagoons and the coastal waters). All chloride readings were taken with electronic analyzers (electrode method). Samples were treated with a preservative depending the particular analysis to be performed (H_3PO_4 to pH<2; 0.5g $CuSO_4$ for phenols; HNO_3 to pH<2 for lead and zinc; H_2SO_4 to pH<2 for ammonia; and NaOH to pH>12 for cyanide). Stray samples were treated in the same way. However, stray samples were collected as soon as possible after a stray ordnance exploded. This translated to an average of 35 minutes after

TABLE 5

SAMPLE LOCATION DESCRIPTIONS

Sample Station	Meters Offshore	Location
RW01	140	Bahia Icacos, North of Bull's-eye Target No. 1
RW02	180	Bahia Salinas midway between RW01 and RW03
RW03	180	Pta. Salinas
RW04	90	Midway between RW03 and RW05
RW05	180	North of Eastern Friendly Front Line
RW06	140	Bahia Salina Del Sur, South of Bull's-eye Target No. 1
RW07	160	Bahia Salina Del Sur, Southwest of Airfield
RW08	45	Bahia Salina Del Sur, (Southeast Point), South of Naval Gunfire Target No. 6
RW09	140	Midway between RW08 and RW10, South-southeast of Fuel Storage Area
RW10	230	South of Eastern Friendly Front Line
RW11	NA	South point of Laguna Annones
RW12	NA	North-east point of Laguna Gato
RW13	NA	East point of Laguna Icacos

impact for the boat to safely get on site and take the sample. All sample bottles were then (1) sealed, (2) labelled with time and date of collection and collector, and (3) carefully packed in ice and padding to protect and preserve during shipment. Samples were immediately shipped to mainland Puerto Rico and then to an analytical laboratory in Newport News, Virginia. Due to the brief holding times for some of the parameters, samples were rushed to the laboratory for analysis within 24 hours. Periodic sample losses occurred during shipping.

In addition to collection of samples, occasional weather and sea observations were recorded. Rainfall was measured daily (at the same time each day) and observed sea state (north and south of the impact area) was recorded for each sampling day.

In accordance with permit conditions, a joint sampling of the 13 stations was conducted by NAVSTA and the Puerto Rico Environmental Quality Board (EQB). This duel sampling effort was established for the purpose of data comparison and quality control. The information collected by EQB was requested on several occasions so that it could be included in this document. In September of 1990, EQB informed the Navy that the monitoring data had been lost due to Hurricane Hugo.

B. Sample Analysis

Temperature, dissolved oxygen, and pH were measured at each sample site. Other parameters analyzed by the laboratory contractor along with the accompanying analytical methods are provided in Table 6. Examination of the methods employed has revealed that analytical methodologies and instrumentation used for certain parameters were not capable of detecting concentrations as low

TABLE 6

PARAMETERS AND ANALYTICAL METHODS

Parameter	Analytical Method
Cadmium, Chromium, Copper, Iron Lead, Manganese, Silver, and Zinc	Flame Atomic Absorption I, 303A, 303B
Barium	Flame Atomic Absorption I, 303C
Mercury	Cold Vapor Atomic Absorption I, 303F
Arsenic and Selenium	Graphite Furnace Atomic Absorption II, 206.2, 270.2
Boron	Colorometric, Curcumin I, 404A
Hexavalent Chromium	Colorometric Diphenylcarbazide I, 312B
Cyanide	Colorometric following Distillation I, 412B, 412D
Fluoride	Ion Selective Electrode I, 413B
Nitrate-Nitrite	Cadmium Reduction, Colorometric I, 418C, 419
Ammonia	Nesslerization following Distillation I, 417A, 417B
Sulfide	Iodometric I, 427B, 427D
Sulfate	Turbidimetric I, 426C
Chloride	Argentometric I, 407A
Turbidity	Nephelometric I, 214A
Color	Chloroplatinate Comparison I, 204A
Suspended Solids	Nonfilterable residue dried at 103°C I, 209D
Oil and Grease	Partition-Gravimetric I, 503A

TABLE 6 (Continued)

Parameter	Analytical Method
Phenols, RW01-RW10	4 AAP Photometric following Distillation, Chloroform Extraction I, 510A, 510B, 510C
Phenols, RW11-RW13	Gas Chromatographic, FID III, 604 utilizing clean up procedure in Section 10.2 Run on J & W DB-5 Capillary

REFERENCES:

I. Standard Methods for the Examination of Water and Wastewater, 15th Ed 1980 APMA-AWWA-WPCF.

II. Methods for Chemical Analysis of Water and Wastes, U.S. E.P.A. 600/4-79-020, March, 1979.

III. Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, U.S. E.P.A., 600/4-82-057, July, 1982.

as the water quality standards which EQB subsequently specified for those parameters. Examples of this situation are found in the methods used for lead and silver. The analytical method used for these two metals as well as for cadmium, chromium, copper, iron, lead, manganese, zinc and barium (i.e., flame atomic absorption) yields data that are accurate and precise when the method is performed without analytical error. However, the detection limits for flame atomic absorption are higher than other analytical methods that could be used for heavy metals (such as Inductively Coupled Plasma, EPA method 200.7). In the case of cyanide, the analytical method used by the laboratory contractor was appropriate. However, the water quality standard set for cyanide by the EQB is so low that it is below the detection limit of state-of-the-art analytical methods for cyanide. In a similar situation, the average level of boron in seawater with a salinity of 35% is about 4.4 mg/l (Turekian, 1968). The EQB has set a water quality standard for boron at 4.8 mg/l, only 0.4 mg/l higher than the level that occurs naturally.

If the Navy is to continue water quality sampling, then changes should be made in certain analytical methods (see recommendations). The EQB should also re-evaluate its water quality standards with respect to analytical detection limits of present day methodologies and naturally occurring background concentrations of oceanic waters.

VI. EVALUATION OF DATA

A. TAMS, 1979 Water Quality Survey

A background water quality data set taken before bombing practice began is lacking for this investigation. Use of Vieques for bombing practice began as early as 1960, with present targets being established in 1971. Prior to this time, there were no comprehensive water quality studies performed, and subsequently, the Environmental Quality Board has not routinely monitored the lagoonal or offshore waters of Vieques.

During the summer of 1978, the Navy conducted a water quality survey (Table 7) in conjunction with the preparation of the Draft Environmental Impact Statement on the continued use of the Atlantic Fleet Weapons Training Facility at the Inner Range on Vieques (TAMS, 1979). Samples were taken from sites over most of the island. These sites were mostly coastal, but also including swamps and landlocked lagoons (Figure 3). While useful information was obtained regarding the water quality on Vieques, the short time span of the study and relatively small sample size, along with its timing (seven years after the start of current target usage), preclude this study from serving as a background water quality reference.

There are some data from the 1979 study that are important to note. When comparing the data to current EQB water quality standards for coastal waters, a few parameters were found to be elevated. Sulfate levels were slightly high. Phenols and cadmium all had a few sites which exceeded EQB standards, but when all sites were averaged, each parameter was well within the standard. This is not true for lead, zinc, mercury and copper, which were above the standards at

TABLE 7

VIEQUES WATER QUALITY - Date: May 31 - June 1, 1978

Parameter / Station	NO_3-N Nitrates (mg/l)	NO_2-N Nitrites (mg/l)	NH_3-N Ammonia (mg/l)	TKN Total Kjeldahl Nitrogen (mg/l)	$O-PO_4$ Diss. Ortho Phosphate (mg/l)	P Total Phosphorus (mg/l)	SO_4 Total Sulfate (mg/l)	Phenols (µg/l)	Si Diss. Silica (mg/l)	Mg Magnesium (mg/l)	As Arsenic (µg/l)	Fe Iron (µg/l)	Mn Manganese (µg/l)	Hg Mercury (µg/l)	Se Selenium (µg/l)
1 Surface	NS →														
2 Surface	<0.004	<0.004	0.040	1.10	0.014	0.068	2960	<1	<0.1	1370	1	170	50.0	<0.2	3
3 Surface	<0.004	<0.004	<0.030	0.385	0.013	0.063	2640	<1	<0.1	1390	2	160	50.0	<0.2	<1
4 Surface	<0.004	<0.004	0.045	0.597	0.111	0.578	2830	3	<0.1	1390	4	180	50.0	<0.2	2
5 Surface	<0.004	<0.004	<0.030	0.403	0.030	0.135	2830	<1	<0.1	1340	1	150	50.0	<0.2	4
5a Surface	<0.004	<0.004	<0.030	0.456	0.013	0.104	2930	14	<0.1	1390	1	160	50.0	<0.2	<1
5b Surface	<0.004	<0.004	<0.030	0.438	0.012	0.090	2990	2	<0.1	1360	3	250	50.0	<0.2	2
5c Surface	<0.004	<0.004	<0.030	0.385	0.013	0.090	2990	<1	<0.1	1400	2	160	50.0	<0.2	3
6 Surface	NS →														
7 Surface	<0.004	<0.004	<0.030	0.421	0.014	0.068	2990	<1	<0.1	1360	3	200	50.0	<0.2	5
7a Surface	<0.004	<0.004	<0.030	0.403	0.013	0.054	2930	10	<0.1	1560	2	300	50.0	<0.2	4
7b Surface	<0.004	<0.004	<0.030	0.421	0.013	0.072	2800	82	<0.1	1390	3	560	50.0	<0.2	<1
7c Surface	<0.004	<0.004	<0.030	0.421	0.013	0.171	2830	<1	<0.1	1260	5	160	50.0	<0.2	1
8 Surface	<0.004	<0.004	<0.030	0.474	0.015	0.063	2860	<1	<0.1	1290	3	890	50.0	<0.2	1
9 Surface	<0.004	<0.004	<0.030	0.502	0.013	0.059	2830	–	<0.1	1410	4	180	50.0	<0.2	3
10 Surface	<0.004	<0.004	<0.030	0.438	0.013	0.063	2800	–	<0.1	1380	3	170	50.0	<0.2	3
11 Surface	NS →														
12 Surface	NS →														
13 Surface	NS →														
14 Surface	NS →														

SOURCE: TAMS, 1979: In U.S. Navy Explosive Ordnance Disposal Office

TABLE 7 (Continued)

VIEQUES WATER QUALITY - Date: September 11-12, 1978

Parameter / Station	$NO_3 - N$ Nitrates (mg/l)	$NO_2 - N$ Nitrites (mg/l)	$NH_3^+ - N$ Ammonia (mg/l)	TKN Total Kjeldahl Nitrogen (mg/l)	$O - PO_4$ Diss. Ortho Phosphate (mg/l)	P Total Phosphorus (mg/l)	SO_4 Total Sulfate (mg/l)	Phenols (µg/l)	Si Diss. Silica (mg/l)	Mg Magnesium (mg/l)	As Arsenic (µg/l)	Fe Iron (µg/l)	Mn Manganese (µg/l)	Hg Mercury (µg/l)	Se Selenium (µg/l)
1 Surface	0.004	0.004	0.040	0.992	0.019	0.195	3060	7	1.0	1310	1	750	110	< 0.2	< 1
2 Surface	0.013	< 0.004	< 0.030	0.417	0.020	0.361	3000	2	0.1	1530	2	200	< 50	0.4	8
3 Surface	0.030	< 0.004	< 0.030	0.465	0.021	0.201	2880	2	0.1	1360	1	260	< 50	< 0.2	8
4 Surface	0.036	< 0.004	< 0.030	0.375	0.050	0.210	2940	6	0.1	1370	2	150	< 50	< 0.2	1
5 Surface	< 0.004	< 0.004	< 0.030	0.347	0.040	0.206	2880	1	0.1	1240	2	150	< 50	< 0.2	3
5a Surface	< 0.004	< 0.004	< 0.030	0.314	0.092	0.170	2820	9	0.1	1330	1	130	< 50	< 0.2	< 1
5b Surface	< 0.004	< 0.004	< 0.030	0.422	0.020	0.165	2940	2	< 0.1	1520	5	260	< 50	< 0.2	4
5c Surface	0.004	< 0.004	< 0.030	0.809	0.160	0.170	2950	4	0.2	1380	2	150	< 50	< 0.2	3
6 Surface	< 0.004	< 0.004	0.070	2.83	0.026	0.233	5780	7	0.1	2630	3	890	190	< 0.2	2
7 Surface	0.007	< 0.004	< 0.030	0.546	0.019	0.215	3100	< 1	0.1	1340	2	180	< 50	< 0.2	1
7a Surface	< 0.004	< 0.004	< 0.030	0.433	0.014	0.557	3100	5	0.1	1360	2	150	< 50	< 0.2	7
7b Surface	< 0.004	< 0.004	< 0.030	0.438	0.037	0.183	3100	< 1	0.1	1360	5	330	< 50	< 0.2	7
7c Surface	< 0.004	< 0.004	< 0.030	0.433	0.015	0.174	2940	1	0.1	1370	2	150	< 50	< 0.2	6
8 Surface	0.098	< 0.004	0.030	0.400	0.041	0.206	3020	< 1	0.1	1290	2	130	< 50	< 0.2	1
9 Surface	< 0.004	< 0.004	< 0.030	0.449	0.071	0.354	2950	3	0.1	1400	1	150	< 50	1.9	4
10 Surface	< 0.004	< 0.004	< 0.030	0.427	0.012	0.269	3020	3	0.1	1370	3	150	< 50	< 0.2	< 1
11 Surface	< 0.004	< 0.004	0.040	0.438	0.015	0.197	3100	4	0.1	1360	1	180	< 50	< 0.2	< 1
12 Surface	0.010	< 0.004	< 0.030	0.524	0.014	0.188	2950	< 1	0.2	1350	3	150	65	1.1	< 1
13 Surface	< 0.004	< 0.004	< 0.030	0.540	0.017	0.165	3020	19	< 0.1	1310	3	150	< 50	< 0.2	4
14 Surface	0.012	< 0.004	< 0.030	0.546	0.014	0.125	2820	20	0.2	1340	4	150	< 50	< 0.2	< 1

SOURCE: TAMS, 1979: In U.S. Navy Explosive Ordnance Disposal Office

TABLE 7 (Continued)

VIEQUES WATER QUALITY - Date: May 31 - June 1, 1978

Parameter / Station	Time	Depth (m)	Temperature (°C)	Salinity (ppt)	D.O. Dissolved Oxygen (ppm)	pH	Secchi Depth (m)	NO_3-N Nitrate-Nitrogen (mg/l)	PO_4-P Total Phosphate (mg/l)	TOC Total Organic Carbon (mg/l)	TSS Total Suspended Solids (mg/l)	VSS Volatile Suspended Solids (mg/l)	Al Aluminum (µg/l)	Cd Cadmium (µg/l)	Cu Copper (µg/l)	Ni Nickel (µg/l)	Pb Lead (µg/l)	Zn Zinc (µg/l)
1 Surface	8:00 a	1	31	34.5	3.1	7.4	0.5	0.13	0.37	–	149.0	–	–	–	–	–	–	–
2 Surface	9:45 a	4.5	28	33.9	5.4	8.1	–	0.12	1.40	–	71.2	–	–	–	–	–	–	–
Bottom	–	–	28	34.9	5.3	3.1	–	0.03	0.73	–	64.0	–	–	–	–	–	–	–
3 Surface	11:06 a	5.5	28.2	35.0	6.3	8.1	–	0.03	0.51	–	82.4	–	<6.0	5.0	53.0	<5.0	5.0	80
Bottom	–	–	28	36.0	6.2	8.1	–	0.03	0.48	–	44.0	–	–	–	–	–	–	–
4 Surface	12:20 p	2.5	29	36.8	6.4	8.1	–	<0.01	2.24	–	64.4	–	<6.0	4.0	18.0	<5.0	3.0	50
5 Surface	1:00 p	6	28.1	36.6	6.3	8.0	–	<0.01	0.38	–	68.8	–	<6.0	10.0	17.0	<5.0	4.0	50
Bottom	–	–	29	36.6	6.1	8.1	–	0.08	0.12	–	50.4	–	–	–	–	–	–	–
5a Surface	1:30 p	5	29.2	35.9	5.9	7.8	–	–	–	–	–	–	–	–	–	–	–	–
5b Surface	1:50 p	4	29.5	35.9	6.2	7.9	–	–	–	–	–	–	–	–	–	–	–	–
5c Surface	2:15 p	7	30	35.0	6.4	8.0	–	–	–	–	–	–	–	–	–	–	–	–
6 Surface	–	–	–	–	–	–	–	0.21	0.92	–	54.4	–	–	–	–	–	–	–
7 Surface	3:15 p	8	29.5	36.0	6.3	8.0	–	0.02	0.78	–	67.6	–	<6.0	12.0	18.0	<5.0	6.0	60
Bottom	–	–	28	36.7	6.0	8.0	–	0.06	2.41	–	42.8	–	–	–	–	–	–	–
7a Surface	3:30 p	5.5	29	36.9	6.2	8.0	–	–	–	–	–	–	–	–	–	–	–	–
7b Surface	3:45 p	6	29.5	36.1	6.6	8.1	–	–	–	–	–	–	–	–	–	–	–	–
7c Surface	3:55 p	3	30	36.0	6.2	8.0	–	–	–	–	–	–	–	–	–	–	–	–
8 Surface	4:20 p	4	29.8	35.7	5.8	8.0	–	0.09	1.37	–	67.6	–	<6.0	12.0	26.0	<5.0	2.0	565
Bottom	–	–	29.9	35.5	5.9	8.0	–	0.05	0.36	–	48.8	–	–	–	–	–	–	–
9 Surface	5:10 p	5.5	30.0	36.0	6.7	8.0	–	0.02	15.22	–	61.6	–	<6.0	1.0	32.0	<5.0	4.0	445
Bottom	–	–	30.0	36.0	6.7	8.0	–	<0.01	4.04	–	68.4	–	–	–	–	–	–	–
10 Surface	5:50 p	6.5	29.8	36.0	6.5	7.9	–	0.02	2.93	–	64.4	–	<6.0	11.0	21.0	<5.0	5.0	55.5
Bottom	–	–	29.0	35.5	6.3	7.9	–	0.06	0.44	–	70.0	–	–	–	–	–	–	–
11 Surface	← NS →																	
Bottom																		
12 Surface	← NS →																	
Bottom																		
13 Surface	← NS →																	
14 Surface	9.25 a	1.2	31	34.5	5.2	8.0	–	0.03	0.88	–	67.2	–	<6.0	2.0	15.0	<5.0	2.0	75
Puerto Negro Surface	11:50 a	4.5	28.8	35.0	6.5	8.1	–	0.17	2.05	–	28.8	–	<6.0	1.0	5.0	<5.0	3.0	35
Bahia Jalova Surface	5:30 p	3.5	30.0	36.0	6.6	8.0	–	0.18	0.62	–	7.2	–	<6.0	1.0	13.0	<5.0	2.0	35
Well	← NS →																	

SOURCE: TAMS, 1979: In U.S. Navy Explosive Ordnance Disposal Office

TABLE 7 (Continued)

VIEQUES WATER QUALITY - Date: July 17-18, 1978

Station \ Parameter	Time	Depth (m)	Temperature (°C)	Salinity (ppt)	D.O. Dissolved Oxygen (ppm)	pH	Secchi Depth (m)	NO_3-N Nitrate-Nitrogen (mg/l)	PO_4-P Total Phosphate (mg/l)	TOC Total Organic Carbon (mg/l)	TSS Total Suspended Solids (mg/l)	VSS Volatile Suspended Solids (mg/l)	Al Aluminum (µg/l)	Cd Cadmium (µg/l)	Cu Copper (µg/l)	Ni Nickel (µg/l)	Pb Lead (µg/l)	Zn Zinc (µg/l)
1 Surface	7:30 a	1	27.0	35.8	4.0	7.5	–	0.06	0.44	< 1	61.3	9.3	–	–	–	–	–	–
2 Surface	8:50 a	4.6	27.5	36.1	5.6	8.2	–	0.09	0.37	< 1	50.4	10.0	–	–	–	–	–	–
Bottom	–	–	27.5	36.1	5.3	7.8	–	0.23	1.38	–	29.3	2.3	–	–	–	–	–	–
3 Surface	10:00 a	5.5	27.5	36.1	5.9	7.8	–	< 0.01	1.30	< 1	82.9	19.6	–	–	–	–	–	–
Bottom	–	–	27.5	36.0	5.8	7.8	–	0.02	0.50	–	33.6	4.0	–	–	–	–	–	–
4 Surface	11:10 a	4.0	28.5	36.2	5.9	7.9	–	< 0.01	0.56	1.5	33.6	4.3	13	3	8	< 5	22	240
5 Surface	11:40 a	6.0	27.8	36.1	6.3	7.9	4.5	0.13	0.81	< 1	27.0	0.6	12	4	11	< 5	28	496
Bottom	–	–	28.0	36.1	6.0	8.0	–	0.34	0.44	–	28.0	1.3	15	3	60	6	39	340
5a Surface	←			NS														→
5b Surface	←			NS														→
5c Surface	←			NS														→
6 Surface	1:30 p	0.15	31.8	73.9	7.2	8.25	–	0.14	0.74	17.6	82.6	19.3	–	–	–	–	–	–
7 Surface	9:20 a	8.0	28.0	36.0	5.2	–	–	0.10	0.44	1.3	34.3	5.0	16	4	28	5	40	465
Bottom	–	–	28.8	35.8	5.4	–	–	< 0.01	0.12	–	29.0	2.3	12	2	22	< 5	42	505
7a Surface	←			NS														→
7b Surface	←			NS														→
7c Surface	←			NS														→
8 Surface	10:05 a	4.0	28.1	35.9	5.7	–	–	< 0.01	0.44	< 1	38.6	38.3	24	5	51	15	48	1500
Bottom	–	–	28.2	36.0	5.7	–	–	< 0.01	0.17	–	29.6	2.6	14	3	54	< 5	73	365
9 Surface	11:10 a	2.0	28.8	35.0	5.6	–	–	0.32	0.18	1.4	35.6	36.6	15	6	62	12	57	285
Bottom	–	–	28.8	35.0	5.8	–	–	< 0.01	0.06	–	30.3	3.3	–	–	–	–	–	–
10 Surface	11:43 a	6.0	29.0	34.5	5.6	–	–	0.17	0.81	< 1	65.3	11.3	17	5	64	15	47	380
Bottom	–	–	29.0	34.6	5.8	–	–	< 0.01	–	–	32.3	2.0	–	–	–	–	–	–
11 Surface	1:00 p	1.5	30.0	35.2	6.3	–	–	0.14	0.31	< 1	31.0	2.3	–	–	–	–	–	–
12 Surface	1:40 p	3.75	29.8	35.2	6.6	–	–	0.09	0.06	< 1	30.3	1.7	–	–	–	–	–	–
Bottom	–	–	29.8	35.3	6.8	–	–	< 0.01	0.37	–	31.0	2.0	–	–	–	–	–	–
13 Surface	2:10 p	5.0	29.1	35.0	5.4	–	–	0.10	0.56	< 1	26.0	0.3	–	–	–	–	–	–
14 Surface	7:40 a	0.5	28.0	35.0	5.1	–	–	0.29	0.74	1.7	28.3	1.3	31	6	57	< 5	57	200
Puerto Negro Surface	10:38 a	2.75	28.0	36.0	7.0	7.8	–	0.19	0.18	< 1	28.0	1.7	12	2	30	< 5	56	255
Bahia Jalova Surface	10:25 a	3.75	28.5	35.0	5.3	–	–	0.13	0.12	< 1	34.6	5.3	15	4	45	< 5	21	945
Well	3:00 p	–	28.0	2.2	1.7	6.91	–	0.67	0.84	–	–	–	–	–	–	–	–	–

SOURCE: TAMS, 1979: In U.S. Navy Explosive Ordnance Disposal Office

TABLE 7 (Continued)

VIEQUES WATER QUALITY - Date: September 11-12, 1978

Parameter / Station	Time	Depth (m)	Temperature (°C)	Salinity (ppt)	D.O. Dissolved Oxygen (ppm)	pH	Secchi Depth (m)	NO_3 - N Nitrate-Nitrogen (mg/l)	PO_4 - P Total Phosphate (mg/l)	TOC Total Organic Carbon (mg/l)	TSS Total Suspended Solids (mg/l)	VSS Volatile Suspended Solids (mg/l)	Al Aluminum (ug/l)	Cd Cadmium (ug/l)	Cu Copper (ug/l)	Ni Nickel (ug/l)	Pb Lead (ug/l)	Zn Zinc (ug/l)
1 Surface	7:15a	1	27.0	37.1	3.2	–	0.5	0.72	0.56	5.2	86.0	15.6	–	–	–	–	–	–
2 Surface	9:20a	4	28.1	34.2	5.0	–	–	0.95	0.53	2.2	24.6	10.6	7	8	5	< 5	11	165
Bottom	–	–	28.4	34.1	5.0	–	–	0.54	0.44	–	34.0	14.0	–	–	–	–	–	–
3 Surface	10:00a	3.25	28.8	33.6	4.9	–	–	0.59	0.31	2.9	20.0	4.0	< 6	5	4	< 6	30	715
Bottom	–	–	28.0	33.7	5.0	–	–	0.86	0.62	–	37.0	7.3	–	–	–	–	–	–
4 Surface	11:00a	3.5	28.3	34.9	5.1	–	–	0.99	1.20	1.5	26.0	6.6	14	4	16	< 5	51	875
5 Surface	11:25a	5.25	27.0	34.3	5.6	–	–	0.79	0.31	2.3	22.6	7.3	7	2	32	< 5	< 1	515
Bottom	–	–	28.0	24.1	5.2	–	–	0.52	0.09	–	32.6	14.0	< 6	3	24	14	24	380
5a Surface	11:47a	3.5	28.5	34.3	5.3	–	–	–	–	–	–	–	–	–	–	–	–	–
5b Surface	12:00	2.5	27.0	34.3	5.1	–	–	–	–	–	–	–	–	–	–	–	–	–
5c Surface	12:10p	4.0	29.0	34.6	5.6	–	–	–	–	–	–	–	–	–	–	–	–	–
6 Surface	2:05p	0.15	35.0	86.0	7.6	–	–	1.3	0.51	19.4	66.7	18.0	7	8	30	88	53	260
7 Surface	10:35a	9.0	28.5	33.1	5.0	–	–	0.74	0.25	2.1	18.3	10.0	< 6	2	47	< 5	< 1	980
Bottom	–	–	28.4	33.1	5.0	–	–	1.30	0.37	–	18.0	8.6	9	3	19	< 5	26	430
7a Surface	9:55a	4.5	28.9	33.5	5.2	–	–	–	–	–	–	–	–	–	–	–	–	–
7b Surface	10.10a	4.0	29.0	33.6	5.0	–	–	–	–	–	–	–	–	–	–	–	–	–
7c Surface	9:40a	4.0	28.7	33.5	5.5	–	–	–	–	–	–	–	–	–	–	–	–	–
8 Surface	11:02a	4.5	29.0	33.5	5.1	–	–	1.20	0.22	< 1	26.0	9.3	< 6	4	34	< 5	29	830
Bottom	–	–	29.0	33.6	5.0	–	–	0.36	0.41		20.0	9.3	< 6	2	45	< 5	5	950
9 Surface	11:55a	3.0	30.5	33.7	5.5	–	–	0.11	0.81	< 1	24.0	8.6	6	3	34	< 5	20	640
Bottom	–	–	29.9	34.1	5.5	–	–	0.14	0.91	–	34.0	12.6	–	–	–	–	–	–
10 Surface	12:50a	3.0	29.5	33.2	5.4	–	–	0.35	0.49	< 1	28.0	11.3	7	2	34	< 5	24	295
Bottom	–	–	29.1	33.3	5.5	–	–	0.41	0.09	–	30.6	7.3	–	–	–	–	–	–
11 Surface	1:30p	2.0	29.9	34.2	7.0	–	–	0.47	0.12	1.5	27.3	8.6	–	–	–	–	–	–
12 Surface	2:10p	4.5	30.5	33.8	6.5	–	–	1.90	0.47	<1	25.3	8.6	9	–	25	< 5	65	65
Bottom	–	–	31.0	33.7	6.4	–	–	0.77	0.25	–	36.0	11.3	–	–	–	–	–	–
13 Surface	1:30p	5.0	28.1	34.8	5.4	–	–	0.05	0.16	<1	22.0	8.6	–	–	–	–	–	–
14 Surface	7:45a	1.0	27.9	33.3	4.5	–	–	0.99	0.40	<1	29.3	10.0	8	3	26	28	26	880
Puerto Negro Surface	10:40a	3.25	28.1	34.1	4.0	–	–	1.80	0.37	<1	22.0	12.0	7	3	38	< 5	32	240
Bahia Jalova Surface	11:25a	4.0	29.3	33.4	5.3	–	–	0.70	0.25	2.8	–	–	8	4	26	35	7	530
Well	3:05p	–	28.0	2.0	1.1	–	–	–	0.44	–	–	–	–	–	–	–	–	–

SOURCE: TAMS, 1979: In U.S. Navy Explosive Ordnance Disposal Office

all or most sites. Arsenic, manganese, and lenium were below EQB standards. The remaining TAMS parameters had no specified EQB standard or NPDES limits against which to compare the TAMS levels.

B. Correlation Analysis: Ordnance Usage versus Water Quality

Ordnance usage at Vieques is shown in Table 8 and in Figure 4. Usage data is measured in tons of ordnance per month and covers the period from September, 1983 to April, 1988. These graphics indicate that range activity has varied widely over the period of record; from a low of 0.2 tons of live ordnance to a high of almost 320 tons. Navy documents (Goodwin, 1985) define a "typical" monthly usage as 125 tons of ordnance, 34% or 42 tons of which is live. The data show six discrete months when range usage was higher than "typical", with July, 1985 being much higher than any other peak month.

If water quality in the nearshore waters surrounding the range is influenced by the level of ordnance detonation, concentrations of parameters examined in the Navy's sampling program would be expected to vary according to that level of activity. Therefore, higher values for certain parameters such as cadmium, chromium, copper, lead, iron, zinc, nitrate & nitrite (which are components of the unexploded ordnance), ammonia and cyanide (which may be by products of detonation) would be expected to be found during these peaks of activity, or shortly thereafter. A statistical analysis of the data was performed to assess possible correlations between ordnance usage (in tons/month) and each water quality parameter. From the 1983-1985 Water Quality Study samples, 23 water quality parameters were examined statistically with respect to ordnance usage for the same time period.

TABLE 8

ORDNANCE USAGE AT AFWTF

VIEQUES, PUERTO RICO

MONTH/YEAR	TONS PER MONTH	TONS PER MONTH LIVE	% LIVE
SEP. 83	318	226	71
OCT. 83	44	33	75
NOV. 83	102	38	38
DEC. 83	8	8	100
JAN. 84	ND	ND	ND
FEB. 84	ND	ND	ND
MAR. 84	ND	ND	ND
APR. 84	47	6	12
MAY 84	172	9	5
JUN. 84	20	2	10
JUL. 84	61	9	15
AUG. 84	425	125	29
SEP. 84	84	29	34
OCT. 84	28	9	32
NOV. 84	90	12	15
DEC. 84	138	29	21
JAN. 85	118	37	31
FEB. 85	14	2	16
MAR. 85	320	109	34
APR. 85	54	4	8
MAY 85	20	17	86
JUN. 85	51	49	97
JUL. 85	339	319	94
AUG. 85	529	168	32
SEP. 85	98	14	14
OCT. 85	7	0.6	8
NOV. 85	20	7	35
DEC. 85	17	2	13
JAN. 86	49	3	7
FEB. 86	56	12	22
MAR. 86	4	0.5	12
APR. 86	30	3	10
MAY 86	74	20	27
JUN. 86	4	0.5	12
JUL. 86	2	0.2	9
AUG. 86	13	1	6
SEP. 86	4	0.6	15
OCT. 86	4	0.3	8
NOV. 86	14	2	13
DEC. 86	4	0.5	12
JAN. 87	56	9	16

TABLE 8 (Continued)

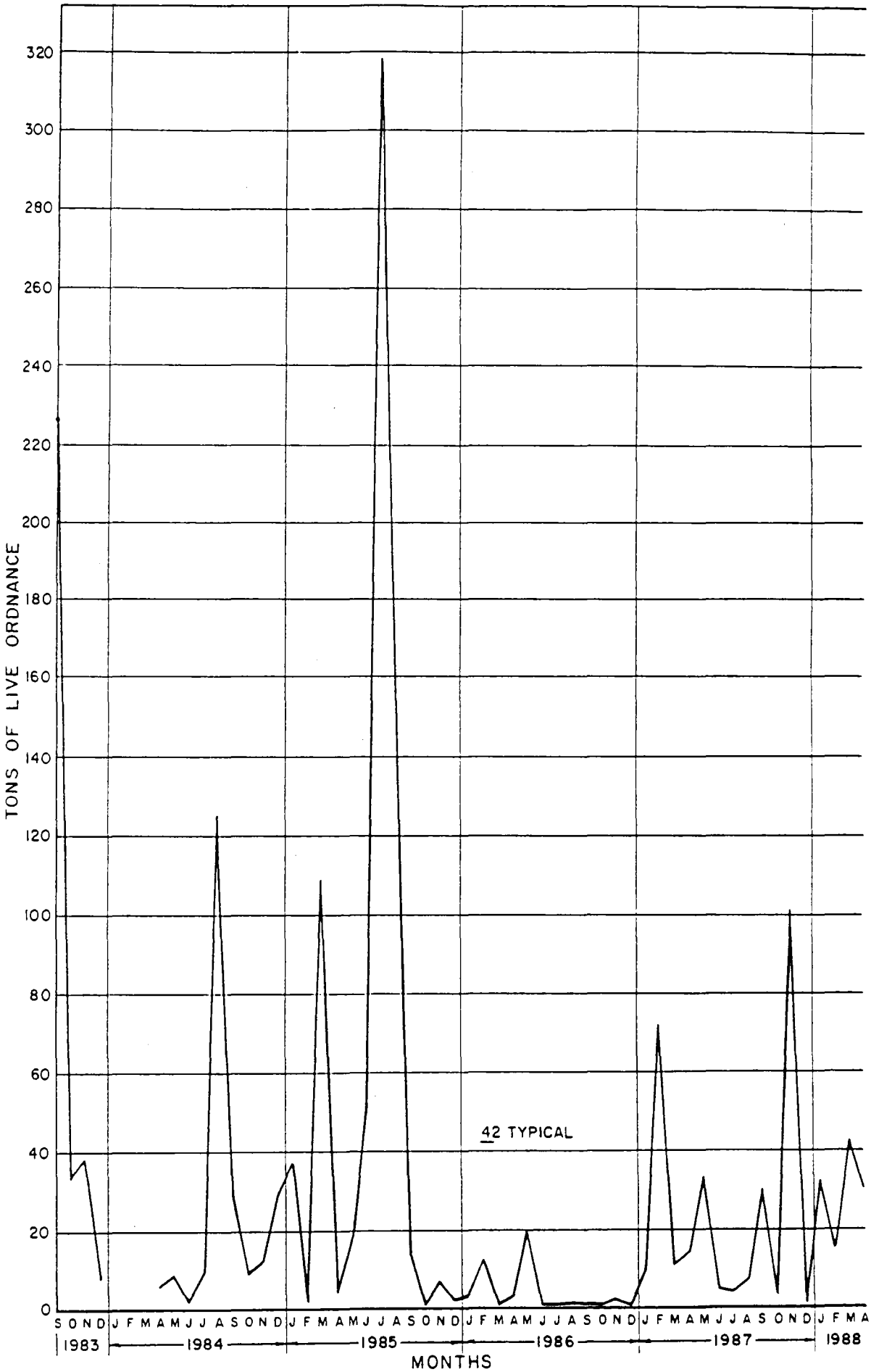
MONTH/YEAR	TONS PER MONTH	TONS PER MONTH LIVE	% LIVE
FEB. 87	379	72	19
MAR. 87	133	11	8
APR. 87	172	14	8
MAY 87	272	33	12
JUN. 87	41	5	11
JUL. 87	36	4	12
AUG. 87	53	7	14
SEP. 87	142	30	21
OCT. 87	49	3	7
NOV. 87	390	101	26
DEC. 87	12	1	11
JAN. 88	225	32	14
FEB. 88	105	15	14
MAR. 88	150	42	28
APR. 88	180	29	16

NOTE: NAVY FILES INDICATE THAT "NORMAL" ACTIVITY AT VIEQUES IS 125 TONS PER MONTH, OF WHICH 42 TONS OR 34% OF THE ORDNANCE IS LIVE

NO = NO DATA

FIGURE 4

VIEQUES LIVE ORDNANCE USAGE



1. Methods

The parameter data used for the correlation analysis was obtained directly from Appendix 1, Volume II, of the Engineering Report. At the direction of NAVSTA, data sampled from the oceanic stations (RW01-RW10) were used. It was felt that these oceanic samples provided a much larger and representative data set. Prior to running the correlation analysis, any data values which fell below the specified detection limits were eliminated, since it was not possible to determine the numerical value of these small values. As a result, some parameters did not have a sufficient sample size to work with, while other parameters had sample sizes below statistically recommended levels.

In consideration of the aforementioned limitations, a correlation analysis was performed on each of the 23 parameters determined to have sufficiently large data sets. The correlation analysis compared the parameter of interest (Xi) to the amount of ordnance usage in tons per month (Yi) for months between October 1983 and September 1985. Samples collected between January and March 1984 were not used in the analysis because ordnance data was not available for these months.

2. Results

Table 9 summarizes the results of the correlation analysis. The individual correlation analyses for each water quality parameter are provided for Stations RW-01 through RW-10 in Appendix 3, Volume III, to this document. After eliminating data values that fell below the detection limits for each parameter, cyanide did not contain any usable data. Arsenic, barium, chromium (hexavalent),

TABLE 9
CORRELATION FACTORS (r)

PARAMETER	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
AMMONIA	-0.255	-0.275	-0.307	-0.338	-0.168	-0.122	-0.356	-0.266	-0.081	-0.108
ARSENIC	-0.786	0.985	0.902	0.054	0.857	-0.583	-0.616	-0.488	-0.365	0.875
BARIUM	0.996	0.111	0.452	0.016	0.893	0.644	0.125	0.786	0.786	0.425
BORON	-0.095	0.062	-0.004	0.325	0.134	0.114	0.056	0.362	0.177	0.297
CADMIUM	0.406	0.359	0.501	0.470	0.392	-0.128	0.013	0.288	-0.019	-0.025
CHROMIUM, HEX	1.000	N=1	-1.000	1.000	0.571	1.000	1.000	1.000	1.000	1.000
CHROMIUM, TOT	-0.237	0.052	-0.194	-0.094	-0.208	-0.169	-0.076	-0.252	-0.328	-0.273
COLOR	-0.078	-0.078	-0.177	-0.078	*	*	-0.078	*	-0.078	*
COPPER	0.083	0.111	0.251	0.225	0.218	0.198	0.120	0.357	0.380	0.011
CYANIDE	NO DATA AVAILABLE									
FLOURIDE	0.239	0.096	0.190	0.176	0.125	0.030	0.247	0.038	-0.061	-0.119
IRON	0.174	0.175	0.188	0.241	0.163	0.159	0.202	-0.035	-0.003	0.056
LEAD	-0.039	-0.116	-0.134	-0.034	-0.033	-0.086	-0.094	-0.186	-0.218	-0.049
MAGANESE	-0.064	-0.072	-0.032	-0.031	-0.151	-0.101	-0.011	-0.330	-0.247	-0.253
MERCURY	1.000	-1.000	-0.023	-0.368	0.243	-0.036	-1.000	N=1	-1.000	-1.000
NIT & NIT	-0.081	-0.028	-0.267	-0.141	-0.042	-0.178	0.112	-0.154	0.152	-0.201
OIL & GREASE	-0.356	0.143	-0.131	-0.521	-0.249	-0.234	-0.068	0.065	-0.116	-0.198
PHENOLS	-0.024	0.256	-0.028	-0.095	-0.164	0.490	0.036	-0.168	0.965	-0.390
SELENIUM	0.508	0.956	0.810	1.000	0.966	0.982	1.000	0.978	1.000	0.998
SILVER	-0.114	-0.122	-0.120	-0.124	-0.127	-0.080	-0.076	-0.251	-0.147	-0.321
SULFIDES	-0.131	0.001	0.216	-0.064	0.017	-0.029	0.025	0.121	0.265	-0.046
SUSP. SOLIDS	0.350	0.318	0.662	0.402	0.326	0.259	0.321	0.326	0.250	0.328
TURBIDITY	-0.255	0.144	-0.121	-0.061	-0.147	0.439	-0.372	0.725	0.853	0.689
ZINC	-0.173	-0.022	-0.175	0.118	-0.181	0.009	-0.042	-0.045	-0.094	-0.089

* ALL DATA VALVES ARE 1.000-NO Sx CAN BE COMPUTED.
  CORRELATION IS UNDEFINED

! INSUFFICIENT SAMPLE SIZE

mercury, phenols, and selenium all had insufficient samples sizes. Although some correlations between ordnance usage and water quality were found to be relatively strong within this group of parameters, it is important to note that these results are inconclusive due to the relatively small sample sizes.

Parameters with sufficient sample size and negative correlations (ammonia, chromium (total), color, lead, manganese, nitrate and nitrite, oil, silver, zinc) indicate initially that, as the amount of ordnance usage increased, the concentration of the parameter decreased. It should be noted, however, that none of these parameters exhibit strong correlations (that is, values noticably less than 1.0). Therefore, it is not valid to claim any type of correlation between these parameters and ordnance usage.

Parameters with sufficient sample size and positive correlations (boron, cadmium, copper, fluoride, iron and suspended solids) indicate initially that, as the amount of ordnance usage increased, the concentration of the parameter also increased. Again, it is important to note that none of these parameters exhibit strong correlations (noticably less than a value of 1.0). The sulfides yielded correlation values near zero, indicating no correlation between ordnance usage and sulfide concentrations in the water column.

Turbidity exhibited some possibilities of correlation, with three values ranging from 0.69 to 0.85. However, the remaining data values were random positive and negative values close to zero. Although they have not been deemed statistically insufficient, the sample sizes for turbidity are approximately half the size of other statistically-sufficient size sets. As before, any conclusions regarding correlation between turbidity and ordnance usage would be debateable.

Another approach to the correlation analysis has been to: (1) identify the three largest correlations (magnitude only, ignoring sign) for each parameter, (2) tag them with their appropriate sample station (RW01-RW10) and (3) look for any possible trends among stations. This approach was taken to determine whether concentrations are greater at certain stations.

Station RW-03 exhibits the greatest number of high correlations at 11; followed by station RW-09 (with 9); stations RW-01, RW-04, RW-08, RW-10 (with 7 each); station RW-07 (with 3); stations RW-05, RW-06 (with 2 each); and station RW-02 (with 1). Note that those parameters with statistically-insufficient sample sizes were not used in this analysis.

With any correlation analysis, a recommended procedure is to test for the significance of P, the population correlation coefficient. P measures the strength of linear association between X and Y. This test, however, is based on the assumption that both X and Y data sets are normally distributed. A chi-square "goodness of fit" test was performed on Yi (the 1983 to 1985 ordnance usage values). At the 5% level of significance, it has been determined that the Yi data set is not normally distributed. Thus, the test on P could not be applied in this case.

C. Water Quality Over Time

Water quality over time at Vieques was determined by examining the various parameters from the beginning of sampling (6 February 1984) until the most recent available data (2 November 1988) for the stray sites, RW14 and RW15. The stray sites were examined because they had measurements at regular intervals for the longest period of time, as well as the most recent data.

Concentrations of the various parameters seem to vary a great deal over time, and indeed even from week to week (Appendix 1, Volume II). They also seem to vary independently of one another. Some parameters, such as color, chromium (hexavalent), and cyanide show little overall change over time. Others (cadmium, silver, and manganese) have much higher values (often above the EQB water quality standards) for the stray sites from October 1983 to September 1985 (when fifteen sites were being sampled) than the lower values seen from January 1985 to November 1988 (Appendix 2, Volume II). Fluoride, mercury, nitrate plus nitrite, oil, and selenium show very low values prior to January 1986, but increase considerably thereafter. Oil has scattered high values with small peaks around May 1986, October-November 1987, and February 1988. Nitrate plus nitrite shows scattered high values but no real trends. Fluorides have clustered high values between February 1987 and September 1988. Mercury reaches two small peaks (February and June 1987), and selenium has almost consistently high values from August 1987 until November 1988, most above EQB standards.

Arsenic has generally low values with a small peak in October 1987, still well below EQB standards. Turbidity has only one highpoint (March 1985), which is above standard. Total suspended solids have scattered high points, most occurring between April 1984 and August 1985. Sulfide concentrations seems to have a somewhat bimodal distribution, with a peak between February and September 1984, scattered high points, and then another peak in June 1986 (most high points above standard). Phenols have widely scattered high points with above standard concentration, with small peaks in February and June 1986, and February and April 1988. Barium has moderate peaks in March and June 1986, and several smaller ones scattered between September 1986 and November 1987. None of the concentrations are above standard. Boron has scattered above standard levels, particularly concentrated between January 1986 and February 1987, with the largest peaks in

January and March 1986. The levels are all within the standard from March 1987 until November 1988.

Chromium (total) is well within the standard, with a small peak in early 1985. Copper has many scattered high values above the standard, with peaks from February 1984 to September 1985 and March to November 1987. Iron is similar with many values above standard and peaks from February 1984 to August 1985 and August to November 1987. Lead has many above standard values with the highest values between February 1984 and September 1985. Manganese has only two values above standard (February 1984, March 1985) and the other high levels mostly prior to January 1986. Zinc has several scattered above standard concentrations with most occurring prior to January 1986, and peaks thereafter in May and July 1986 and February 1988.

A direct comparison of water quality parameter concentrations over time indicate that the concentrations vary widely over time and that they do not do so in unison (Appendix 1, Volume II). Since October 1983, the water quality seems to be neither improving nor decreasing. In some cases, levels changed dramatically in no more than 2-3 days. There were no trends visible in the changes in parameter concentrations.

D. Water Quality and Rainfall

Consideration was also given to the possibility of a relationship between water quality and rainfall via the discharge of runoff from the Inner Range into the surrounding waters. An examination of the analytical results for samples collected on September 10, 1984 revealed that despite almost 2 inches of rain in the prior 24 hours period, concentrations of water quality parameters remained

almost unchanged from the month before when no rain had fallen in the prior 24 hours.

Historically, the wettest months for Vieques are September, October and November (TAMS, 1979). If runoff from the Inner Range were to influence the water quality of surrounding waters, then it would be expected that the salinity of those waters would decline in response to the introduction of freshwater. However, examination of the graph of salinity versus time in Appendix 1, Volume II, there is no such pattern of decline during the fall months.

E. Previous Ordnance Studies

Several earlier studies have looked at the dispersion of explosive products used at Vieques. Lai (1978) looked at concentrations of ammonia, cyanide, nitrate-nitrite, perchlorate, and white phosphorus in the water in and around the Inner Range. Perchlorate and white phosphorous were found to have no detectable levels in any of the sites. Nitrate-nitrites, ammonia, and cyanide had somewhat higher concentrations in bomb craters and swamps than in seawater; however, they were still below water quality standards. Lai also pointed out that these higher concentrations are of unknown origin and could have come from decaying plants, animal wastes, and/or fertilizers.

Hoffsomer and Glover (1978) looked at the concentrations of TNT, RDX, and tetryl (explosives and explosive products) in the water around Vieques. They found that the levels of TNT, RDX, and tetryl all fell between $<8 \times 10^{-6}$ ppm (TNT) and 2×10^{-2} ppm (RDX) for the 24 sites sampled indicating that explosives products did not remain in the water. The concentration levels of TNT and RDX (no data for tetryl) were below the upper toxicological hazard levels suggested by the

U.S. Army Medical Bioengineering Research and Development Laboratory (TNT <.01 ppm, RDX <.03 ppm).

Young (1978) found that carbon monoxide was the only gas with concentrations high enough for concern; all other gases were below OSHA allowable exposures within 1000 feet of explosion. Young pointed out that land within one mile of the target is evacuated during exercises and the explosion products are rapidly diluted in the air and water.

Collectively, the results of the above studies, and other literature referenced in those studies (Brown and Smith, 1978; Dolce and Metz, 1977; Hannan, 1978; Raymond, 1978) indicate that few explosive projects remain in a soluble state for more than a very brief period in the water column. Those compounds that do remain are quickly diluted and dissipated by the action of water currents. Particulate matter remaining from the explosion would fall to the bottom and either remain in the sediments or be incorporated into tissue if ingested by marine life.

The implications of these findings with respect to water quality monitoring are: (1) that explosives and their detonation by-products should not produce measurable water quality degradation; (2) the by-products of ordnance detonation remain in the water column for such a brief period and are so quickly diluted and dispersed that it is highly unlikely they could be captured in a water sample taken almost 30 minutes after detonation; (3) the monitoring program that was developed by the Environmental Quality Board and turned over to the Navy for implementation specified the wrong ecosystem parameters (i.e. water quality) to be sampled. Because of the particular characteristics of ordnance detonation and circulation/dispersion mechanisms characteristic of oceanic waters, their impacts

on the environment would likely not be manifested in water quality.

F. Natural Background Concentration (NBC) Determination

The 1983-1985 Water Quality Study lacked a pre-ordinance water quality baseline (i.e., well defined water quality parameter measurements performed before ordnance was ever fired at the island). A pre-ordnance study would have generated natural background concentrations (NBC) against which the 1983-1985 and subsequent data could be compared.

The results of the correlation analysis thus far discussed in this Engineering Report indicate that the concentration of the parameters analyzed for stations RW01-RW10 in the 1983-1985 study are not influenced by ordnance usage. Having demonstrated no significant correlations, the concentrations measured may be presumed to reflect the natural background concentrations of the coastal waters of Vieques Island for the purpose of the NPDES permit. This conclusion is based on the following findings:

1. No significant correlation can be established between ordnance usage and parameter concentration for any of the 23 water quality parameters analyzed.
2. A direct comparison of water quality parameter concentrations over time indicate that some parameter concentrations may vary widely over time and that they do not do so in unison. Other parameter concentrations show little change over time. Since October of 1983, the overall water quality seems to be neither improving or decreasing.
3. There is no established relationship between rainfall and

concentrations of the water quality parameters.

4. Ordnance studies (by others) indicated that explosives and their detonation by-products should not produce water quality degradation. By-products of detonation remain in the water column for such a brief period that it is unlikely that they can be captured in a sample taken 30 minutes later.

5. Concentrations of parameters analyzed do not significantly differ from those naturally occurring concentrations measured at the i kilometer offshore stations.

EQB's definition of natural background concentration (NBC) as provided to NAVSTA is:

> Existing biological, chemical, or physical characteristics in a body of water. For mixing zones, a point one hundred (100) meters upstream from the limit of the mixing zone will be used for monitoring, or at the location approved by the Board by mutual agreement with the petitioner, based on the details of each individual case. The value of the background concentration will be determined according to the procedures established by the "Mixing Zone and Bioassay Guidelines" approved by the Board.

Since some concentrations did vary widely over time, a statistical approach adopted by EQB and recommended by NAVSTA was used further define these background concentrations.

1. Methods

The data used for the NBC determination was obtained from Appendix 1, Volume II, of the Engineering Report. Data sampled from the oceanic stations (RW01-RW10) were used. Before running the statistical analysis, any data values which fell below the specified detection limits were eliminated. As a result, some parameters did not have a sufficient sample size to work with an were not analyzed while other parameters had sample sizes below statistically recommended levels. The statistical method for determining the NBC for each of the parameters as recommended by EQB is described in following sections.

NBC Determination: A monitoring point not affected by point or nonpoint discharges at a location approved by EQB (by mutual agreement with the petitioner, based on the details of each individual case) shall be used for NBC determination. EQB by mutual agreement with the petitioner shall determine the minimum number of samples and the frequency of sampling. As specified by EQB, natural background concentration (NBC) was determined as follows:

1. Calculate the average concentration.
2. Calculate the standard deviation.
3. Determine the acceptance region.

   $AR = Cave \pm 1.96\ s$

   where: AR = acceptance region

   Cave = average concentration

   s = standard deviation
4. Delete the values that do not fall in the acceptance region.
5. NBC = average concentration of the values that fall in the acceptance region.

Through the above specified means, any wide variances (increases and decreases) of the parameter concentrations are thrown out, and a mean is determined from the resulting data. This mean value is defined as the NBC for the parameter.

2. Results

Table 10 lists the NBC's calculated for 23 parameters at stations RW01-RW10. NBC determinations for individual parameters at stations RW01-RW10 are provided in Appendix 4, Volume IV. Most parameters except for those with insufficient sample sizes (arsenic, barium, chromium-hexavalent, mercury, phenols, and selenium) show concentrations which are at consistent levels for all stations. Ammonia, nitrate and nitrite, oil and turbidity exhibit some of the larger NBC variations between the stations. NBC's which are higher than the EQB Water Quality Standards and/or NPDES limits are shown in parentheses. These values are discussed in the following section.

Taking into consideration (1) the level of consistency in the NBC's from station to station for the statistically relevant parameters, (2) the lack of any pre-ordinance data, and (3) the aforementioned results of the correlation analysis, the natural background concentrations generated for 17 of the 23 parameters may be considered relevant NBC Determinations for the area (as defined by stations RW01-RW10). These NBC Determinations for the Inner Range are not significantly different from those naturally occurring concentrations measured at the 1 kilometer offshore stations.

TABLE 10
NBC DETERMINATION

PARAMETER	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10	EQB STD	NPDES PERMIT LIMITS	1 KM N	1 KM S	1 KM E
AMMONIA	0.081	0.045	0.043	0.043	0.039	0.043	0.034	0.037	0.029	0.033	*	NS	0.050	0.050	0.070
ARSENIC	0.025	(0.049)	(0.047)	(0.042)	(0.041)	0.025	0.023	(0.060)	(0.043)	(0.037)	0.036	0.150	<0.003	<0.003	<0.003
BARIUM	0.103	0.114	0.105	0.097	0.083	0.094	0.112	0.093	0.093	0.094	1.000	1.000	<0.050	<0.050	<0.050
BORON	(5.375)	4.498	(5.163)	(5.184)	4.250	4.317	(4.964)	(5.405)	4.818	4.507	4.800	4.800	5.390	6.600	6.230
CADMIUM	(0.092)	(0.093)	(0.093)	(0.090)	(0.086)	(0.083)	(0.086)	(0.084)	(0.084)	(0.082)	0.005	0.005	0.081	0.086	0.084
CHROMIUM, HEX	5.400	4.500	7.667	7.333	5.500	3.667	3.667	6.330	5.750	5.250	NS	50.000	2.000	3.000	5.000
CHROMIUM, TOT	0.056	0.057	0.057	0.055	0.053	0.055	0.056	0.052	0.049	0.052	0.300	0.300	<0.040	<0.040	<0.040
COLOR	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	*	*	1.000	1.000	1.000
COPPER	(0.085)	(0.085)	(0.083)	(0.083)	(0.084)	(0.087)	(0.086)	(0.082)	(0.081)	(0.086)	0.005	0.050	0.060	0.060	0.060
FLOURIDE	0.549	0.552	0.573	0.571	0.578	0.570	0.581	0.586	0.569	0.575	1.300	1.300	0.560	0.560	0.450
IRON	0.431	0.422	0.453	0.410	0.407	0.420	0.425	0.419	0.399	0.401	1.000	0.200	0.630	0.720	0.690
LEAD	(0.490)	(0.473)	(0.492)	(0.504)	(0.468)	(0.488)	(0.473)	(0.457)	(0.477)	(0.448)	0.006	0.015	0.340	0.370	0.350
MAGANESE	0.086	0.084	0.081	0.086	0.086	0.085	0.086	0.086	0.077	0.082	0.100	0.100	0.080	0.080	0.080
MERCURY	(1.678)	(0.278)	(0.267)	(0.228)	(0.372)	(0.486)	(0.253)	(0.343)	(0.188)	(0.150)	0.140	1.000	0.590	0.190	0.120
NIT & NIT	0.016	0.015	0.012	0.009	0.009	0.017	0.005	0.006	0.007	0.006	NS	NS	<0.003	<0.003	<0.003
OIL	3.813	3.316	2.857	2.043	2.529	7.154	3.750	2.813	3.294	2.313	15.000	15.000	1.000	1.000	3.000
PHENOLS	(10.139)	(13.427)	(27.200)	(13.143)	8.330	7.667	3.500	4.875	9.200	9.143	10.000	10.000	10.000	14.000	13.000
SELENIUM	(0.016)	(0.048)	(0.048)	(0.022)	(0.018)	(0.040)	(0.027)	(0.039)	(0.027)	(0.040)	0.010	0.010	<0.003	<0.003	<0.003
SILVER	(0.057)	(0.054)	(0.053)	(0.052)	(0.058)	(0.053)	(0.053)	(0.048)	(0.053)	(0.050)	0.002	0.002	0.050	0.050	0.050
SULFIDES	(1.458)	(1.349)	(1.473)	(1.341)	(1.366)	(1.389)	(1.469)	(1.558)	(1.545)	(1.370)	0.002	0.002	2.470	2.000	2.000
SUSP. SOLIDS	89.250	81.826	74.800	92.909	83.227	95.000	76.000	77.826	88.375	79.708	*	NS	5.000	5.000	12.000
TURBIDITY	2.149	3.130	2.880	3.444	3.014	1.763	1.900	2.238	2.438	2.850	<10.000	15.000	0.500	0.400	0.900
ZINC	(0.058)	(0.057)	(0.059)	(0.055)	(0.060)	(0.053)	(0.055)	(0.050)	(0.061)	(0.062)	0.050	0.050	0.030	0.040	0.040

NS - NOT SPECIFIED

* NUMERIC STANDARD VARIES ACCORDING TO SITE SPECIFIC BACKGROUND LEVEL AND CONDITIONS

THOSE VALUES SHOWN IN PARENTHESIS () DENOTE NBCs WHICH EXCEED EQB WATER QUALITY STANDARDS OR NPDES LIMITS

G. Water Quality and Commonwealth Water Quality Standards

On 22 April 1988, the Environmental Quality Board of Puerto Rico established a new and revised set of water quality standards (Table 11). Although most limits remained the same, six were revised. Specifically, the acceptable limit for arsenic was changed from 0.15 mg/l to 0.036 mg/l; copper from 0.05 mg/l to 0.005 mg/l; iron from 0.20 mg/l to 1.00 mg/l; lead from 0.15 mg/l to 0.0056 mg/l; mercury from 0.001 mg/l to 0.00014 mg/l; and cyanide from 0.02 mg/l to 0.0001 mg/l. Any newly issued NPDES permit for AFWTF may require compliance with the new limits. For the parameters cadmium, lead, and silver (Table 10), the EQB limits were below the detection limits of the analytical technique used for determination, making it impossible to determine whether the sample concentrations were actually within the limits for concentrations at or below the detection limit. For the parameter zinc, the EQB limit was equal to the detection limit.

The NBC Determination (Table 10) shows those concentrations which are greater than the EQB standards in parentheses. Eleven of the 23 parameters had natural background concentrations at some stations which were higher than the EQB standards. Of these eleven parameters, only arsenic and mercury had natural background concentrations which were higher than the EQB Standards, but less than the NPDES permit limits. The remaining nine parameters all had natural background concentrations higher than NPDES permit limits. Iron had concentrations lower than the EQB standards, but higher than the NPDES limits.

Parameters with NBC's slightly greater than the EQB standards (concentrations less than twice the EQB standard concentration) are arsenic, boron, phenols, and zinc. Arsenic (with statistically insufficient sample sizes)

TABLE 11

NPDES PERMIT LIMITS AND ENVIRONMENTAL QUALITY BOARD
WATER QUALITY STANDARDS

PARAMETER	NPDES PERMIT LIMIT WATER QUALITY STANDARDS (mg/l)	EQB WATER QUALITY STANDARDS AS OF APRIL 22, 1988 (mg/l)
ARSENIC	0.15	0.036
BARIUM	1.00	1.00
BORON	4.80	4.80
CADMINUM	0.005	0.005
CHROMIUM (HEXAVALENT)	0.05	NS
CHROMIUM (TOTAL)	0.30	0.30
COPPER	0.05	0.005
IRON	0.20	1.0
LEAD	0.015	0.0056
MANGANESE	0.10	0.10
MERCURY	0.001	0.00014
SELENIUM	0.01	0.01
SILVER	0.002	0.002
ZINC	0.05	0.05
CHLORIDES	NS	NS
CYANIDE	0.02	0.001
FLUORIDE	1.3	1.3
AMMONIA	NS	*
NITRATE-NITRITE	NS	NS

TABLE 11 (Continued)

PARAMETER	NPDES PERMIT LIMIT WATER QUALITY STANDARDS (mg/l)	EQB WATER QUALITY STANDARDS AS OF APRIL 22, 1988 (mg/l)
NITROGEN	5.00	5.00
SULFIDE	0.002	0.002
SULFATE	2800.00	2800.00
PHENOLS	0.01	0.01
TURBIDITY NIU	<10 NIU	< 1 0
OIL	15.00	15.00
COLOR	*	*
TOTAL SUSPENDED SOLIDS	NS	*
TEMPERATURE	*	*
DISSOLVED OXYGEN	>5.0	>5.0
pH	7.3-8.5	7.3-8.5

NS NO STANDARD ADOPTED

* NUMERIC STANDARD VARIES ACCORDING TO SITE SPECIFIC BACKGROUND LEVEL AND CONDITIONS

had seven out of ten stations greater than the EQB standard. Boron had five out of ten stations greater than the EQB standard. Phenols (with statistically insufficient sample sizes) had four out of ten stations greater, and zinc had nine out of ten stations which were slightly greater than the EQB standard.

Parameters which are greater than the EQB standard by twice the concentration but less than ten times the concentration are mercury and selenium. These findings however are inconclusive, since both had statistically insufficient samples sizes.

Parameters which were greater than the EQB standard by ten times the concentration, but less than 20 times the concentration are (1) cadmium, with levels of approximately 17 to 18 times the EQB standard at all ten stations, and (2) copper, with levels approximately 17 times greater than the EQB standard at all ten stations.

Parameters with NBC's greater than the EQB standard by more than 20 times are lead, silver and sulfides. Lead had concentration levels approximately 87 times greater than the EQB standard at all ten stations. Silver had concentration levels approximately 24 to 26 times greater at all stations. Sulfides had concentration levels approximately 675 to 780 times greater at all stations.

EQB standards and NPDES permit limits appear to be too low for the NBC's exhibited by these eleven parameters. A comparison of those parameters having NBC's exceeding EQB standards to the same parameters measured at the oceanic stations located one kilometer to the north, south and east of Vieques (which were sampled only once on April 2, 1984) is provided in Table 10. For at least

11 parameters, this comparison indicates that both the 1988 EQB Water Quality Standards and the limits specified in the NPDES permit exceed natural oceanic concentrations and thus may not be applicable to oceanic waters surrounding Vieques.

Arsenic and selenium NBC's are much greater (by a factor of approximately ten) than the respective concentrations at the one kilometer stations. However, sample sizes for these parameters were considered statistically insufficient. Copper, lead, and zinc have NBC's slightly greater than the 1 kilometer stations, with concentrations twice or less than twice those at the one kilometer stations. Boron, cadmium, mercury, phenols, and silver had NBC's approximately equal to the concentrations at the one kilometer stations. The sulfide NBC is slightly less than the sulfide concentrations at the one kilometer stations.

Assuming that the singular set of concentrations measured at the 1 kilometer offshore stations reflect natural background concentrations for oceanic waters surrounding Vieques, only copper, lead, and zinc have statistically-determined NBC levels which consistently exceed by small amounts the measured concentrations at the oceanic stations. Thus measurements taken at the 1 kilometer stations also seem to indicate that as many as 11 EQB parameter standards and nine NPDES parameter limits may have been set too low and are exceeded by natural background concentrations of marine waters surrounding Vieques.

VII. CONCLUSIONS

Based on the statistical procedures recommended by NAVSTA and performed by Hayes, Seay, Mattern and Mattern, Inc., there appears to be no significant correlation between ordinance usage and parameter concentration for any of the 23 water quality parameters analyzed by the correlation analysis. Among the parameters considered are cadmium, chromium, copper, lead, iron, and zinc, which are components of unexploded ordnance and would be expected to be found shortly after peak periods of range activity. This finding of no significant correlation should be qualified by the fact that six of the 23 parameters were comprised of sample sizes too small to be of statistically significant value. Fortunately, all of the six parameters listed above as components of ordnance were found to have statistically sufficient data sets.

Reasonable natural background concentration (NBC) levels were statistically determined for 17 of the 23 parameters. Parameter data from stations RW01-RW10 were used to make these determinations. It is felt that this data provides an accurate representation of background concentrations due to the following factors:

1. No significant correlations were found to exist between ordnance usage and parameter concentration for any of the parameters analyzed.
2. Studies conducted since 1983 indicate that the overall water quality is neither improving or decreasing.
3. No relationship can be established between limited data or rainfall runoff (via discharge runoff from the inner range) and the water quality parameters.
4. Ordnance studies (by others) indicated that explosives and their

detonation by-products should not produce water quality degradation.

5. The statistically determined NBC levels for 11 of the 23 parameters analyzed were greater than Environmental Quality Board (EQB) standards. Nine of these were greater than National Pollutant Discharge Elimination System (NPDES) limits. The NBC levels calculated as part of this investigation compared favorably to the concentrations measured at the one kilometer oceanic stations for the majority of the parameters. The NBC levels for parameters with a sufficient number of samples were consistent among stations RW01-RW10 for the majority of parameters.

Based on these results, it has been concluded (1) that certain EQB parameter standards and NPDES permit limits may have been set at levels which are significantly lower than their corresponding natural background concentrations and (2) that these standards are not appropriate or applicable to oceanic waters surrounding Vieques.

VIII. RECOMMENDATIONS

The Environmental Impact Statement addressing the continued use of the Atlantic Fleet Weapons Training Facility Inner Range at Vieques Island, Puerto Rico identifies a number of adverse impacts which effect the terrestrial and aquatic ecosystems of the island to varying degrees. Coastal water quality degradation, however, is not among the listed impacts. Previously performed technical studies on ordnance chemistry and the chemical nature of explosion by-products indicate that the likelihood of ordnance leaving a measurable signature on water quality of the marine environment is very low (further supporting the absence of water quality degradation from the list of identified impacts).

A correlation analysis performed as part of this investigation has indicated that there is no significant correlation between ordnance usage and water quality offshore of the Inner Range. Natural background concentration (NBC) determinations also performed as part of this investigation indicate that natural background concentrations for marine waters offshore of the Inner Range (1) naturally exceed Water Quality Standards adopted by the Puerto Rico Environmental Quality Board and limits specified in the NPDES Permit for a number of parameters, and (2) do not significantly differ from natural concentrations measured in marine waters 1 kilometer offshore of Vieques. Based on an evaluation of previous investigations and the results of the statistical analyses performed as part of this investigation, the following recommendations are provided:

1. Because analyses indicate no significant correlation between ordnance usage and water quality, and because there is no data to the contrary, it is recommended that the water quality monitoring program specified by NPDES Permit be terminated.

2. Because natural background concentrations of the marine waters surrounding Vieques naturally exceed a significant number of concentration limits specified in the Water Quality Standards adopted by EQB in 1988 and limits specified in the NPDES Permit, it is recommended that the standards of both programs be reassessed with the goal of developing standards which more appropriately reflect naturally occurring water quality of marine waters surrounding Vieques.

3. Because minimum detection limits reported by the analytical laboratory exceeded certain EQB Water Quality Standards, it recommended for purposes of future investigations that the attainability of EQB Water Quality Standards be assessed from the perspective of presently available state-of-the-art analytical methods. If this assessment indicates that EQB standards are indeed attainable under such methods, it is recommended that capabilities of analytical laboratories be clearly documented prior to their selection as a contractor.

BIBLIOGRAPHY

Benitez, J.A.B. 1976. Vieques En La Historia De Puerto Rico. F. Ortiz Nieves, San Juan, Puerto Rico, In: Tibbetts, Abbett, McCarthy, and Stratton. 1979. Draft Environmental Impact Statement: Continued use of the Atlantic Fleet Weapons Training Facility, Inner Range (Vieques). 19 March 1979.

Brown, C. L., Jr. and R. H. Smith. Effects of Underwater Demolition on the Environment in a Small Tropical Marine Cove. U. S. Navy. Underwater Systems Cente, New London, Conn. 1978.

Calvesbert, R.J. 1974. "The Climate of Puerto Rico and the U.S. Virgin Islands, June 1970." Climates of the United States. Vol. 1. U.S. Department of Commerce, In: Tibbetts, Abbett, McCarthy, and Stratton. 1979. Draft Environmental Impact Statement: Continued use of the Atlantic Fleet Weapons Training Facility, Inner Range (Vieques). 19 March 1979.

Court Testimony. U.S. Court of Appeals for the First Circuit. No. 79-1626.

Dolce, T. J. and D. F. Metz. An Analysis of the Cloud Data from the August, 1975 Jefferson Proving Ground Smoke Test. U. S. Army Material Systems Analysis Activity. Aberdeen Proving Ground, Maryland. 1977.

Environmental Protection Agency. 1976. Quality criteria for water. Pre-publication copy, 26 July 1976.

_____. 1979. Handbook for analytical quality control in water and wastewater laboratories. EPA-600/4-79-019, March 1979.

_____. 1979. Methods for chemical analysis of water and wastes. EPA-600/4-79-020, March 1979.

Ginsberg, R.N. 1978. Report on sample of marine silt submitted by W. Raymond. 13 December 1978.

Glennon, J.P., et al. 1977. Munitions environmental quality standards research status report. Technical report #7709. U.S. Army Medical Bioengineering Research and Development Laboratory. Fort Detrick, Maryland.

Goodwin, D. 1985. Atlantic Fleet Weapons Training Facility Inner Range, Vieques Island, Puerto Rico, Water Quality Study, 50% Report (partial: October 1983 - February 1985). Environmental Quality Branch; Utilities, Energy, and Environmental Division; Atlantic Division, Naval Facilities Engineering Command; Code 114. Norfolk, Virginia. April 1985.

Green, R.M. 1979. Sampling Design and Statistical Methods for Environmental Biologists. John Wiley & Sons, Inc., New York.

Hannan, J. V. The Impact of Naval Activities on Coral Reef Fish of Vieques Island, Puerto Rico. U. S. Navy. Legal Department. Unpublished Report. 1978.

BIBLIOGRAPHY (Continued)

Hayes R. W. Pollution from Open Air Detonation and Open Burning. APE No. 1276. Ammunition Equipment Office, Toele Army Depot, Utah. December, 1972.

Hoffsommer, J.C. and D.J. Glover. 1978. Explosives analysis of water and soil samples taken on Vieques Island, Puerto Rico. Naval Surface Weapons Center. White Oak Laboratory. Silver Springs, Maryland.

Lai, M.G. 1978. Explosion products content of water and soil samples taken on Vieques Island, Puerto Rico. Naval Surface Weapons Center. White Oak Laboratory. Silver Springs, Maryland.

Puerto Rico Water Quality Standards Regulation, as amended. Commonwealth of Puerto Rico, Office of the Governor, Environmental Quality Board. 22 April 1988.

Raymond, W. 1978. The marine sediments of a naval bombing range, Vieques, Puerto Rico. Ocean Research and Survey, Inc. Ft. Lauderdale, Florida.

Tibbetts, Abbett, McCarthy, and Stratton. 1979. Draft Environmental Impact Statement: Continued use of the Atlantic Fleet Weapons Training Facility, Inner Range (Vieques). 19 March 1979.

U. S. Army Material Command. Engineering Design Handbook, Principals of Explosive Behavior. AMCP 706-180. U. S. Army Material Command Headquarters, April 1972.

Young, G.A. 1978. Environmental dispersion of the products of explosions of conventional ordnance at Vieques Island. Naval Surface Weapons Center. White Oak Laboratory. Silver Springs, Maryland.

ENGINEERING REPORT APPENDIX
VOLUME II

WATER QUALITY STUDY AT THE U. S. ATLANTIC FLEET WEAPONS TRAINING FACILITY

VIEQUES ISLAND, PUERTO RICO

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

CONTRACT N62470-87-C-9009
(A & E COMMISSION NO. 1735C)

SEPTEMBER 1990

TABLE OF CONTENTS

VOLUME II

ENGINEERING REPORT APPENDIX

APPENDIX

1. PRELIMINARY DATA COMPILATION FROM OCTOBER 1983 TO SEPTEMBER 1985.

2. STATISTICAL COMPILATION OF WATER QUALITY DATA FROM STRAY STATIONS RW14 AND RW15 JANUARY, 1986 THROUGH NOVEMBER, 1988.

PRELIMINARY DATA COMPILATION
WATER QUALITY STUDY

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO

CONTRACT NO. N62470-87-C-9009

NOVEMBER 22, 1988

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

HAYES, SEAY, MATTERN AND MATTERN, INC.
ARCHITECTS-ENGINEERS-PLANNERS
ROANOKE, VIRGINIA
COMMISSION NO. 1735C

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: AMMONIA

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: NO STANDARD

OCEAN

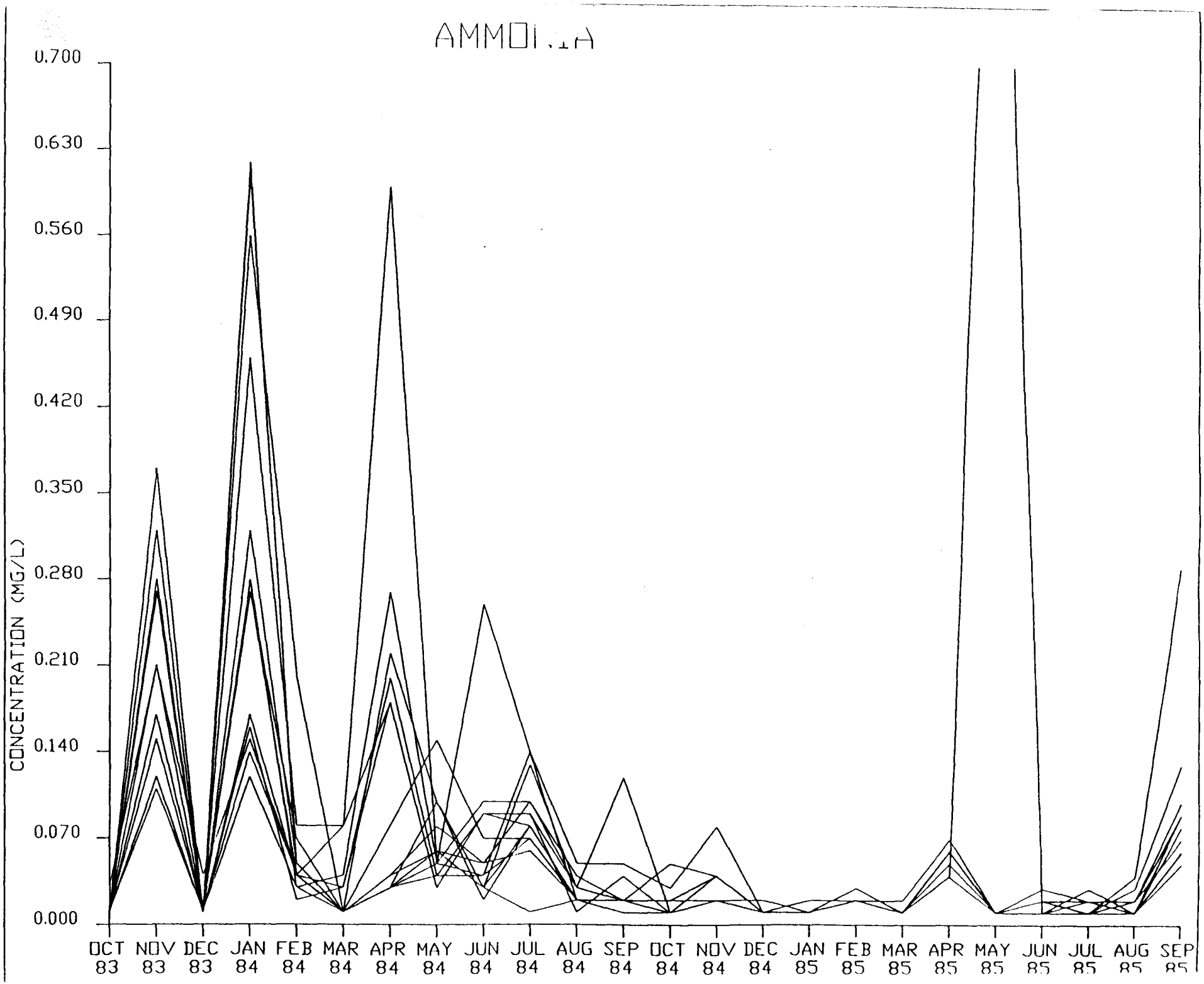
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.030	< .010	< .010	< .010	< .010	< .010	< .010	< .010	< .010	< .010
2 NOV 83	.210	.280	.270	.170	.270	.370	.120	.150	.320	.110
5 DEC 83	.040	< .010	< .010	< .010	< .010	< .010	< .010	< .010	< .010	< .010
4 JAN 84	.150	.120	.140	.160	.270	.170	.280	.270	.320	.620
6 FEB 84	.040	.030	.040	.020	.070	.040	.030	.040	.050	.040
5 MAR 84	.080	.040	.030	.030	.010	.010	.010	.010	.010	.010
2 APR 84	.600	.270	.200	.180	.080	.040	.040	.030	.030	.030
14 MAY 84	.050	.050	.040	.030	.150	.080	.060	.040	.060	.050
13 JUN 84	.260	.100	.090	.090	.070	.050	.050	.040	.030	.040
2 JUL 84	.140	.100	.080	.090	.070	.100	.060	.140	.080	.070
6 AUG 84	.050	.040	.020	.030	.020	.030	.020	.020	.020	.020
10 SEP 84	.050	.020	.020	.020	.020	.020	.020	.010	.020	.020
OCT 84	.030	.020	.020	.050	.020	.020	.010	.010	.010	.010
NOV 84	.080	.040	.040	.040	.040	.020	.040	.040	.020	.020
DEC 84	.010	.010	NS	NS	NS	.020	.010	.010	.010	.010
JAN 85	.010	.010	.010	.010	.010	.010	.020	.010	.010	.010
FEB 85	.020	.030	.020	.030	.020	.020	.020	.020	.020	.020
5 MAR 85	.020	.010	.010	.010	.010	.010	.010	.010	< .010	< .010
16 APR 85	.070	.040	.060	.060	.040	.060	.060	.060	.060	.050
7 MAY 85	< .010	NS	NS	.010	.010	< .010	< .010	< .010	< .010	.010
4 JUN 85	.010	.020	.020	.010	.010	.030	.020	.010	.010	< .010
2 JUL 85	.010	.010	.020	.010	.010	.020	.010	.020	.010	.020
6 AUG 85	.040	.030	.020	.020	.020	< .010	.010	.010	< .010	< .010
10 SEP 85	.290	.130	.100	.090	.070	.060	.060	.050	.050	.050

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: AMMONIA

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	< .010	< .010	< .010	NS	NS
2 NOV 83	.120	.210	.170	NS	NS
5 DEC 83	< .010	< .010	< .010	NS	NS
4 JAN 84	.610	.560	.460	NS	NS
6 FEB 84	.050	.200	.080	.073	NS
5 MAR 84	.010	.010	.080	NS	NS
2 APR 84	.030	.220	.180	.170	NS
14 MAY 84	.100	.100	NS	NS	NS
13 JUN 84	.030	.020	.030	NS	NS
2 JUL 84	.010	.080	.130	.090	NS
6 AUG 84	.020	.020	.030	.010	NS
10 SEP 84	.010	.010	.120	.040	NS
OCT 84	.010	.010	.010	.010	NS
NOV 84	.040	.040	.020	NS	NS
DEC 84	.010	.010	.010	NS	NS
JAN 85	.020	.010	.010	.010	.010
FEB 85	.020	.020	.020	NS	NS
5 MAR 85	< .010	< .010	.010	.010	NS
16 APR 85	.060	.040	.060	.060	.050
7 MAY 85	NS	1.130	< .010	NS	NS
4 JUN 85	.010	.010	.010	.110	.020
2 JUL 85	.010	.010	.030	NS	NS
6 AUG 85	< .010	< .010	< .010	< .010	< .010
10 SEP 85	.060	.080	.090	.090	.080


AMMONIA
CONCENTRATION (MG/L)
0.700
0.630
0.560
0.490
0.420
0.350
0.280
0.210
0.140
0.070
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: ARSENIC

WATER QUALITY STANDARDS OCEAN : .1500 mg/l
LAGOONS: .0500 mg/l

OCEAN

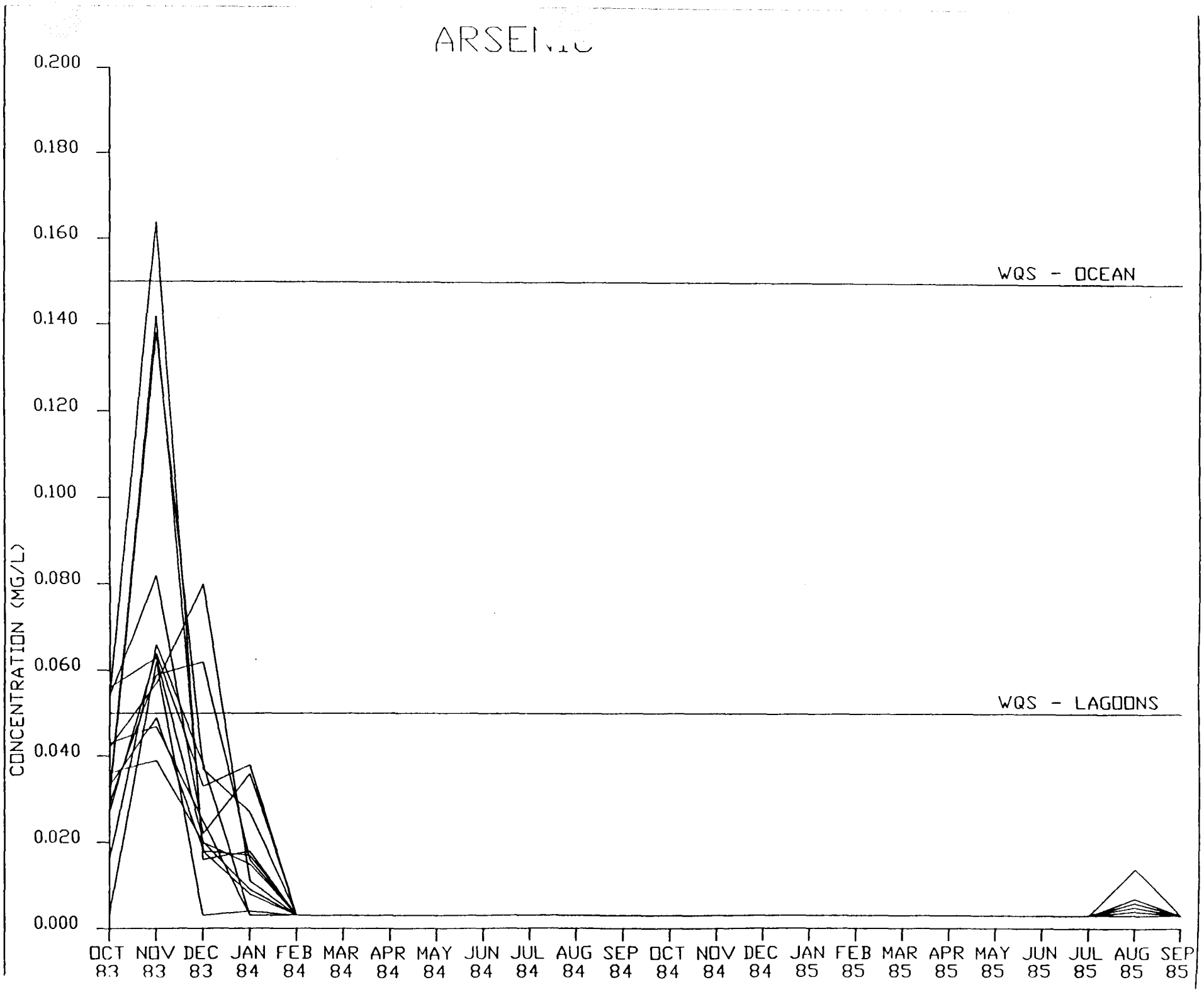
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.043	.054	.030	.029	.027	.016	.033	.042	.054	.056
2 NOV 83	.047	.082	.138	.059	.064	.066	.049	.057	.164	.063
5 DEC 83	.025	.022	.037	.062	.033	.038	.018	.080	.016	.020
4 JAN 84	.003	.036	.027	.016	.038	.003	.008	.011	.018	.009
6 FEB 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
5 MAR 84	< .003	< .003	.003	< .003	< .003	< .003	< .003	< .003	.003	< .003
2 APR 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
14 MAY 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
13 JUN 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
2 JUL 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
6 AUG 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
10 SEP 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
OCT 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
NOV 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
DEC 84	< .003	< .003	NS	NS	NS	< .003	< .003	< .003	< .003	< .003
JAN 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
FEB 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
5 MAR 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
16 APR 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
7 MAY 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
4 JUN 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
2 JUL 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
6 AUG 85	.005	< .003	< .003	< .003	< .003	.003	.006	< .003	.004	< .003
10 SEP 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: ARSENIC

WATER QUALITY STANDARDS OCEAN : .1500 mg/l
LAGOONS: .0500 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.036	.031	< .003	NS	NS
2 NOV 83	.039	.142	.062	NS	NS
5 DEC 83	.020	.018	.003	NS	NS
4 JAN 84	.015	.017	.004	NS	NS
6 FEB 84	< .003	< .003	< .003	< .003	NS
5 MAR 84	< .003	< .003	< .003	NS	NS
2 APR 84	< .003	< .003	< .003	< .003	NS
14 MAY 84	< .003	< .003	NS	NS	NS
13 JUN 84	< .003	< .003	< .003	NS	NS
2 JUL 84	< .003	< .003	< .003	< .003	NS
6 AUG 84	< .003	< .003	< .003	< .003	NS
10 SEP 84	< .003	< .003	< .003	< .003	NS
OCT 84	< .003	< .003	< .003	< .003	NS
NOV 84	< .003	< .003	< .003	NS	NS
DEC 84	< .003	< .003	< .003	NS	NS
JAN 85	< .003	< .003	< .003	< .003	< .003
FEB 85	< .003	< .003	< .003	NS	NS
5 MAR 85	< .003	< .003	< .003	< .003	NS
16 APR 85	< .003	< .003	< .003	< .003	< .003
7 MAY 85	< .003	< .003	< .003	NS	NS
4 JUN 85	< .003	< .003	< .003	< .003	< .003
2 JUL 85	< .003	< .003	< .003	NS	NS
6 AUG 85	.014	< .003	.007	< .003	.004
10 SEP 85	< .003	< .003	< .003	< .003	< .003


ARSENIC
CONCENTRATION (MG/L)
0.200
0.180
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
WQS - OCEAN
WQS - LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: BARIUM

WATER QUALITY STANDARDS OCEAN : 1.0000 mg/l
LAGOONS: 1.0000 mg/l

OCEAN

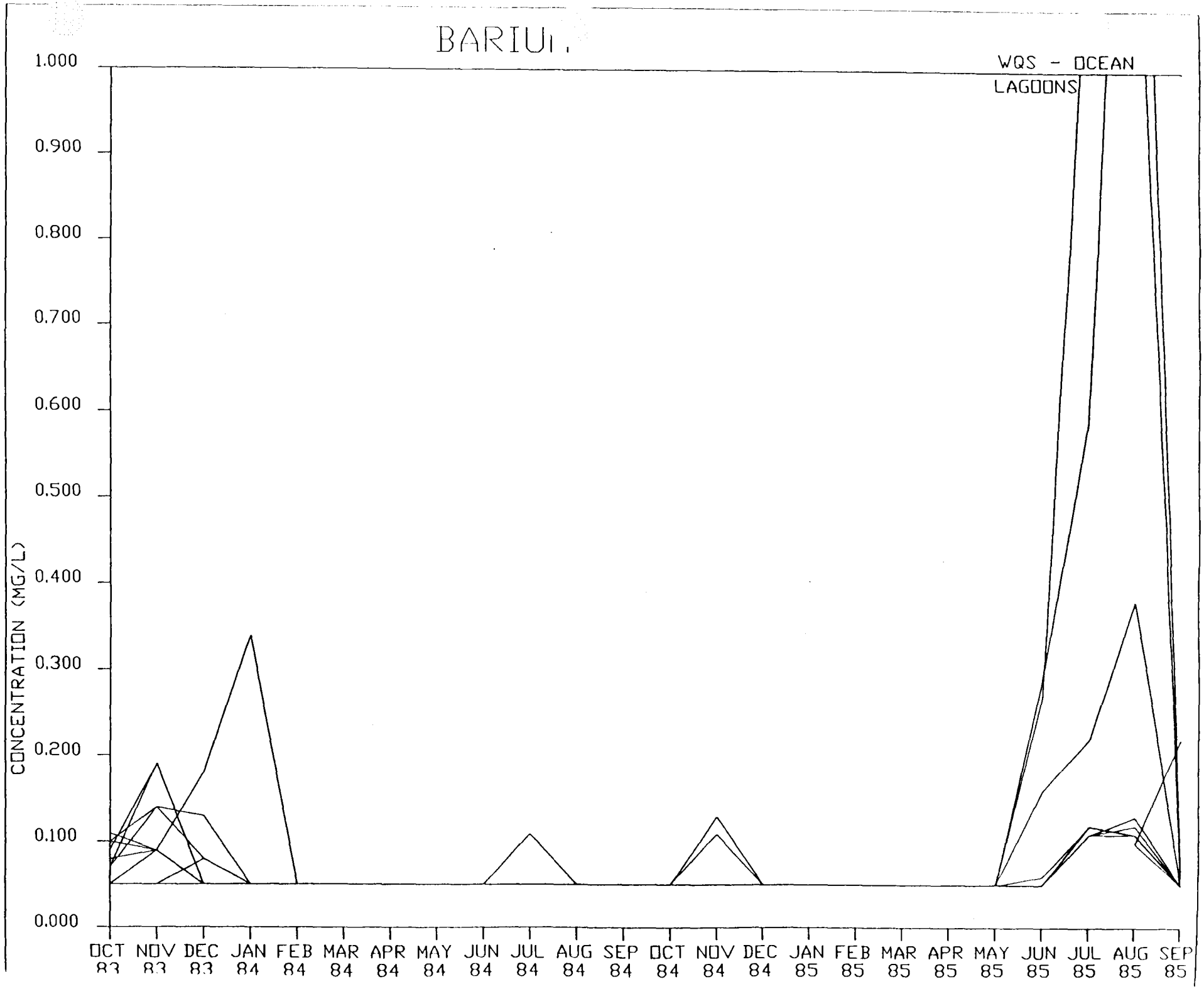
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.080	.070	.110	.070	< .050	.100	.090	< .050	< .050	.100
2 NOV 83	.090	.140	.090	.190	< .050	.090	.190	.090	.090	.140
5 DEC 83	< .050	.130	< .050	< .050	< .050	< .050	< .050	< .050	< .050	.080
4 JAN 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
6 FEB 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
5 MAR 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
2 APR 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
14 MAY 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
13 JUN 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
2 JUL 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
6 AUG 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
10 SEP 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
OCT 84	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
NOV 84	< .050	< .050	< .050	.050	.050	< .050	< .050	< .050	< .050	.050
DEC 84	< .050	< .050	NS	NS	NS	< .050	< .050	< .050	< .050	< .050
JAN 85	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
FEB 85	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
5 MAR 85	< .050	< .050	< .050	.050	< .050	< .050	< .050	< .050	< .050	< .050
16 APR 85	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
7 MAY 85	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050
4 JUN 85	< .050	< .050	< .050	< .050	.050	.050	.050	.050	.050	.060
2 JUL 85	.110	.110	.110	.110	.120	.120	.120	.120	.120	.120
6 AUG 85	.130	.120	.110	.110	.110	.110	.110	.110	.110	.110
10 SEP 85	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050	< .050

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: BARIUM

WATER QUALITY STANDARDS OCEAN : 1.0000 mg/l
LAGOONS: 1.0000 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	< .050	< .050	< .050	NS	NS
2 NOV 83	< .050	< .050	.090	NS	NS
5 DEC 83	.080	.080	.180	NS	NS
4 JAN 84	< .050	< .050	.340	NS	NS
6 FEB 84	< .050	< .050	< .050	< .050	NS
5 MAR 84	< .050	< .050	< .050	NS	NS
2 APR 84	< .050	< .050	< .050	< .050	NS
14 MAY 84	< .050	< .050	NS	NS	NS
13 JUN 84	< .050	< .050	< .050	NS	NS
2 JUL 84	.110	.110	< .050	NS	NS
6 AUG 84	< .050	< .050	< .050	< .050	NS
10 SEP 84	< .050	< .050	< .050	< .050	NS
OCT 84	< .050	< .050	< .050	< .050	NS
NOV 84	.110	.130	.050	NS	NS
DEC 84	< .050	< .050	< .050	NS	NS
JAN 85	< .050	< .050	< .050	< .050	< .050
FEB 85	< .050	< .050	< .050	NS	NS
5 MAR 85	< .050	< .050	< .050	< .050	NS
16 APR 85	< .050	< .050	< .050	< .050	< .050
7 MAY 85	< .050	< .050	< .050	NS	NS
4 JUN 85	.160	.270	.290	.050	.050
2 JUL 85	.220	1.160	.590	NS	NS
6 AUG 85	.380	1.280	1.650	.100	.100
10 SEP 85	< .050	< .050	.060	< .050	.220


BARIUM
WQS - OCEAN
LAGOONS
CONCENTRATION (MG/L)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: BORON

WATER QUALITY STANDARDS OCEAN : 4.8000 mg/l
LAGOONS: 1.0000 mg/l

OCEAN

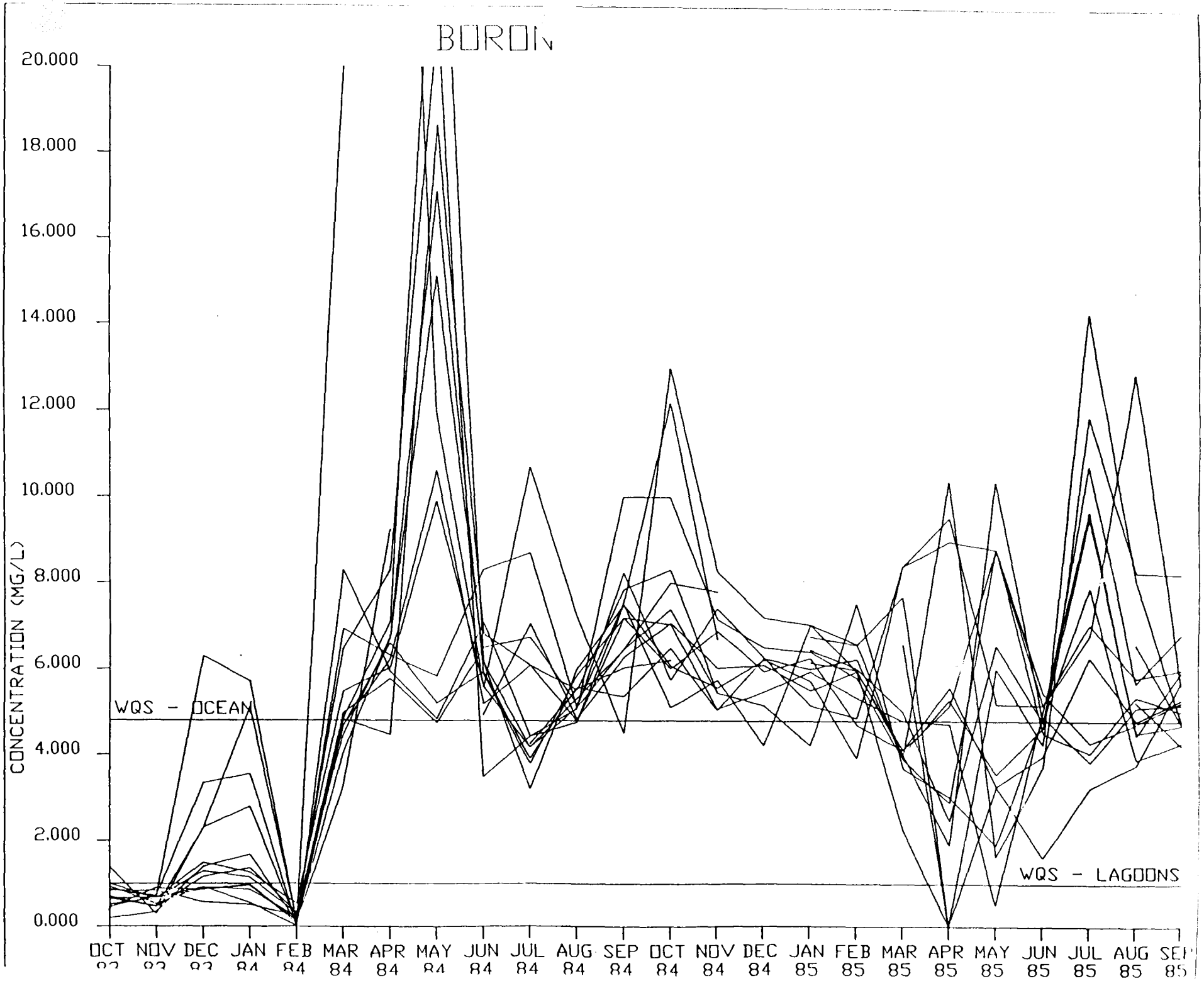
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.870	.870	.430	1.000	.510	.650	.650	.930	.450	.700
2 NOV 83	.710	.670	.900	.660	.650	.680	.450	.520	.710	.460
5 DEC 83	3.340	.860	.860	1.300	1.500	.920	1.170	.920	6.300	2.300
4 JAN 84	3.550	.960	.980	1.150	1.270	.860	1.370	.550	5.710	2.790
6 FEB 84	< .010	.070	.130	.290	.530	.210	.310	< .010	.110	.090
5 MAR 84	8.300	4.700	6.940	4.980	5.480	4.830	4.480	4.860	4.050	4.670
2 APR 84	5.930	6.230	6.310	5.770	6.020	4.470	6.730	7.110	6.730	6.600
14 MAY 84	4.840	10.610	5.830	4.740	9.900	18.670	15.130	25.880	17.110	5.200
13 JUN 84	7.080	5.180	8.300	6.500	5.600	6.820	6.150	6.150	5.880	5.940
2 JUL 84	4.440	6.090	8.700	6.740	4.180	6.090	4.180	3.210	3.790	3.920
6 AUG 84	4.770	5.520	5.110	5.170	5.320	4.800	5.110	6.020	5.860	5.580
10 SEP 84	7.190	7.850	6.450	7.540	6.450	7.500	8.230	7.500	7.190	5.360
OCT 84	6.000	8.300	8.000	12.200	7.390	5.100	5.740	6.070	7.040	6.490
NOV 84	6.890	5.450	7.800	6.700	5.450	5.760	7.420	5.570	5.070	5.040
DEC 84	5.950	5.160	NS	NS	NS	4.230	6.260	6.230	5.480	6.260
JAN 85	6.260	4.230	6.160	6.760	6.450	7.040	5.160	5.730	5.950	6.010
FEB 85	4.710	7.530	5.990	6.560	6.030	5.960	4.870	3.930	5.340	6.240
5 MAR 85	4.120	3.690	4.020	7.690	5.020	4.130	8.390	8.390	4.800	4.020
16 APR 85	5.150	3.030	1.900	* .010	2.460	5.580	8.980	9.540	4.730	5.290
7 MAY 85	8.800	1.900	10.390	6.020	6.560	3.280	8.800	5.190	.500	3.550
4 JUN 85	4.520	4.910	4.780	4.250	4.780	3.990	5.440	5.170	5.040	4.650
2 JUL 85	4.060	3.850	9.530	14.300	7.900	6.280	4.300	6.780	9.690	10.760
6 AUG 85	5.370	5.120	4.530	8.040	3.910	4.810	4.750	12.900	4.470	5.680
10 SEP 85	5.020	5.180	4.710	4.800	4.300	5.300	5.240	5.650	5.930	6.810

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: BORON

WATER QUALITY STANDARDS OCEAN : 4.8000 mg/l
LAGOONS: 1.0000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.840	1.400	.190	NS	NS
2 NOV 83	.840	.280	.330	NS	NS
5 DEC 83	.570	2.300	1.400	NS	NS
4 JAN 84	.510	5.110	1.680	NS	NS
6 FEB 84	.250	.100	.110	< .010	NS
5 MAR 84	6.480	20.300	3.270	NS	NS
2 APR 84	8.280	34.900	9.240	5.040	NS
14 MAY 84	21.210	11.920	NS	NS	NS
13 JUN 84	3.480	5.570	4.940	NS	NS
2 JUL 84	4.440	10.700	7.050	4.260	NS
6 AUG 84	5.080	7.210	4.840	5.540	NS
10 SEP 84	10.000	4.510	6.280	6.030	NS
OCT 84	10.000	13.000	7.070	6.200	NS
NOV 84	7.170	8.270	6.030	NS	NS
DEC 84	6.510	7.200	6.100	NS	NS
JAN 85	6.410	7.040	5.510	4.550	4.400
FEB 85	5.810	6.590	5.960	NS	NS
5 MAR 85	3.910	3.910	2.240	6.570	NS
16 APR 85	2.890	10.390	* .010	* .010	1.330
7 MAY 85	8.800	1.640	3.280	NS	NS
4 JUN 85	5.170	3.730	1.620	4.780	4.780
2 JUL 85	7.050	11.910	3.260	NS	NS
6 AUG 85	5.810	8.260	3.790	5.250	6.580
10 SEP 85	5.990	8.220	5.710	4.240	4.740


BORON
CONCENTRATION (MG/L)
20.000
18.000
16.000
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
WQS - OCEAN
WQS - LAGOONS
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
84 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CADMIUM

WATER QUALITY STANDARDS OCEAN : .0050 mg/l
LAGOONS: .0050 mg/l

OCEAN

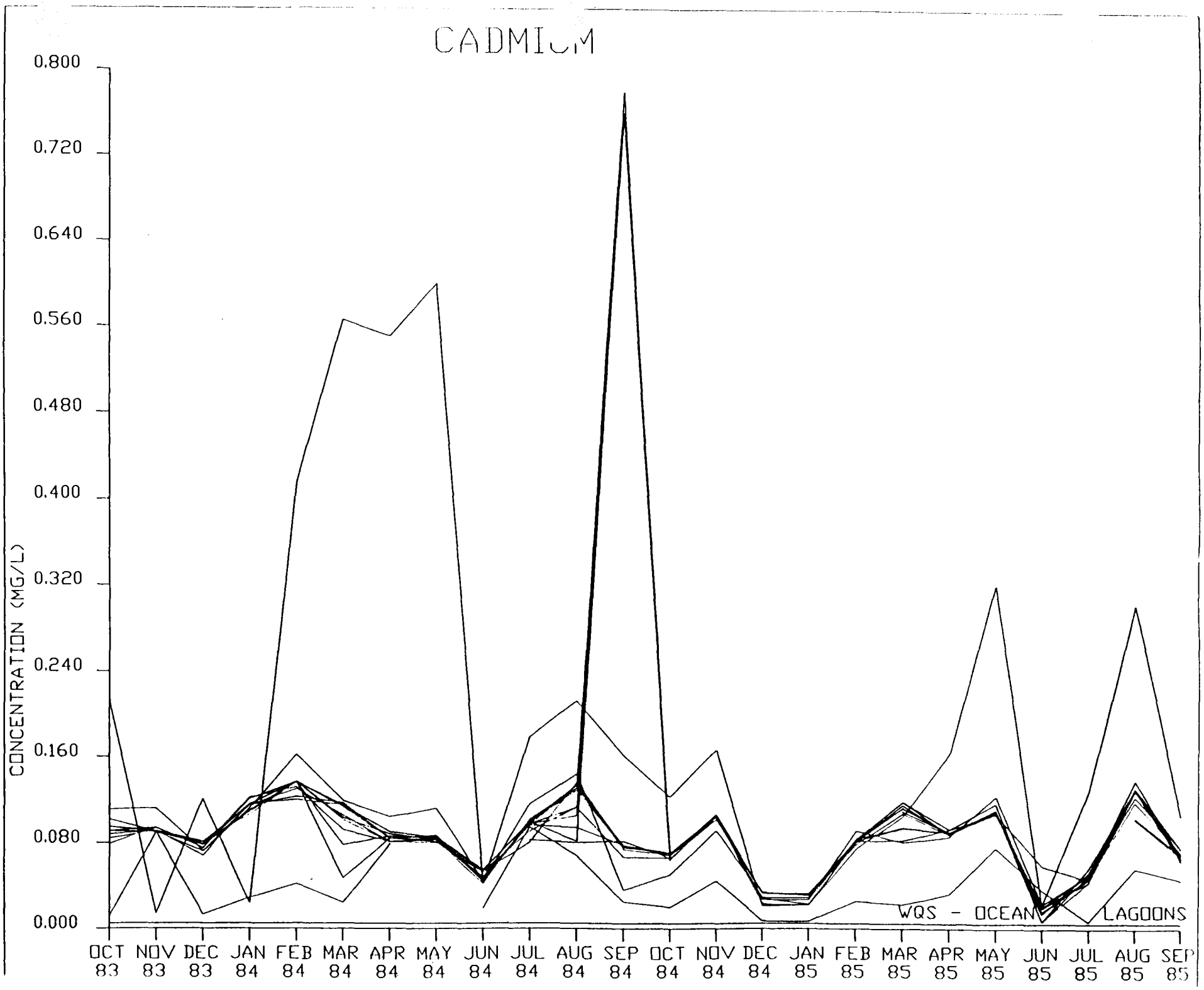
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.102	.095	.095	.091	.091	.088	.088	.079	.084	.091
2 NOV 83	.090	.091	.090	.094	.090	.091	.091	.094	.091	.090
5 DEC 83	.079	.081	.072	.075	.078	.068	.078	.075	.078	.081
4 JAN 84	.116	.115	.115	.122	.116	.116	.109	.121	.110	.106
6 FEB 84	.120	.123	.130	.132	.137	.137	.137	.137	.137	.137
5 MAR 84	.115	.117	.106	.092	.047	.113	.115	.078	.103	.101
2 APR 84	.090	.084	.081	.081	.084	.084	.084	.086	.088	.081
14 MAY 84	.085	.087	.080	.083	.081	.083	.083	.085	.083	.083
13 JUN 84	.055	.044	.053	.048	.053	.055	.042	.048	.046	.048
2 JUL 84	.100	.100	.081	.098	.091	.100	.102	.097	.098	.098
6 AUG 84	.135	.132	.137	.130	.114	.082	.132	.095	.106	.114
10 SEP 84	.074	.078	.076	.076	.067	.760	.780	.078	.760	.760
OCT 84	.069	.071	.071	.071	.066	.069	.071	.069	.064	.069
NOV 84	.102	.105	.102	.102	.102	.102	.105	.105	.105	.107
DEC 84	.028	.023	NS	NS	NS	.034	.033	.033	.027	.033
JAN 85	.023	.022	.031	.031	.033	.031	.033	.033	.027	.033
FEB 85	.082	.084	.084	.082	.084	.079	.084	.082	.084	.082
5 MAR 85	.113	.113	.119	.116	.113	.108	.119	.094	.095	.083
16 APR 85	.090	.090	.093	.088	.090	.088	.088	.090	.090	.093
7 MAY 85	.111	.110	.117	.109	.109	.109	.109	.109	.107	.107
4 JUN 85	< .007	< .007	< .007	.014	.014	.016	.020	.021	.059	.019
2 JUL 85	.051	.044	.057	.053	.049	.047	.051	.044	.046	.047
6 AUG 85	.139	.132	.131	.131	.124	.130	.130	.130	.131	.119
10 SEP 85	.067	.067	.066	.069	.075	.066	.067	.064	.069	.071

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CADMIUM

WATER QUALITY STANDARDS OCEAN : .0050 mg/l
LAGOONS: .0050 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.111	.215	.011	NS	NS
2 NOV 83	.112	.014	.090	NS	NS
5 DEC 83	.072	.121	.013	NS	NS
4 JAN 84	.112	.023	.029	NS	NS
6 FEB 84	.162	.416	.042	.142	NS
5 MAR 84	.119	.566	.024	NS	NS
2 APR 84	.104	.550	.079	.075	NS
14 MAY 84	.112	.600	NS	NS	NS
13 JUN 84	.044	.042	.019	NS	NS
2 JUL 84	.117	.179	.095	.083	NS
6 AUG 84	.145	.213	.069	.081	NS
10 SEP 84	.036	.162	.025	.082	NS
OCT 84	.051	.123	.020	.066	NS
NOV 84	.092	.167	.045	NS	NS
DEC 84	.029	.021	< .007	NS	NS
JAN 85	.029	.022	< .007	.084	.084
FEB 85	.092	.075	.026	NS	NS
5 MAR 85	.081	.105	.023	.110	NS
16 APR 85	.086	.163	.033	.090	.088
7 MAY 85	.124	.320	.076	NS	NS
4 JUN 85	.023	.022	.036	.011	.020
2 JUL 85	.051	.129	.007	NS	NS
6 AUG 85	.132	.302	.057	.103	.104
10 SEP 85	.075	.106	.046	.067	.069


CADMIUM
CONCENTRATION (MG/L)
0.800
0.720
0.640
0.560
0.480
0.400
0.320
0.240
0.160
0.080
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHLORIDES

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: 250.0000 mg/l

OCEAN

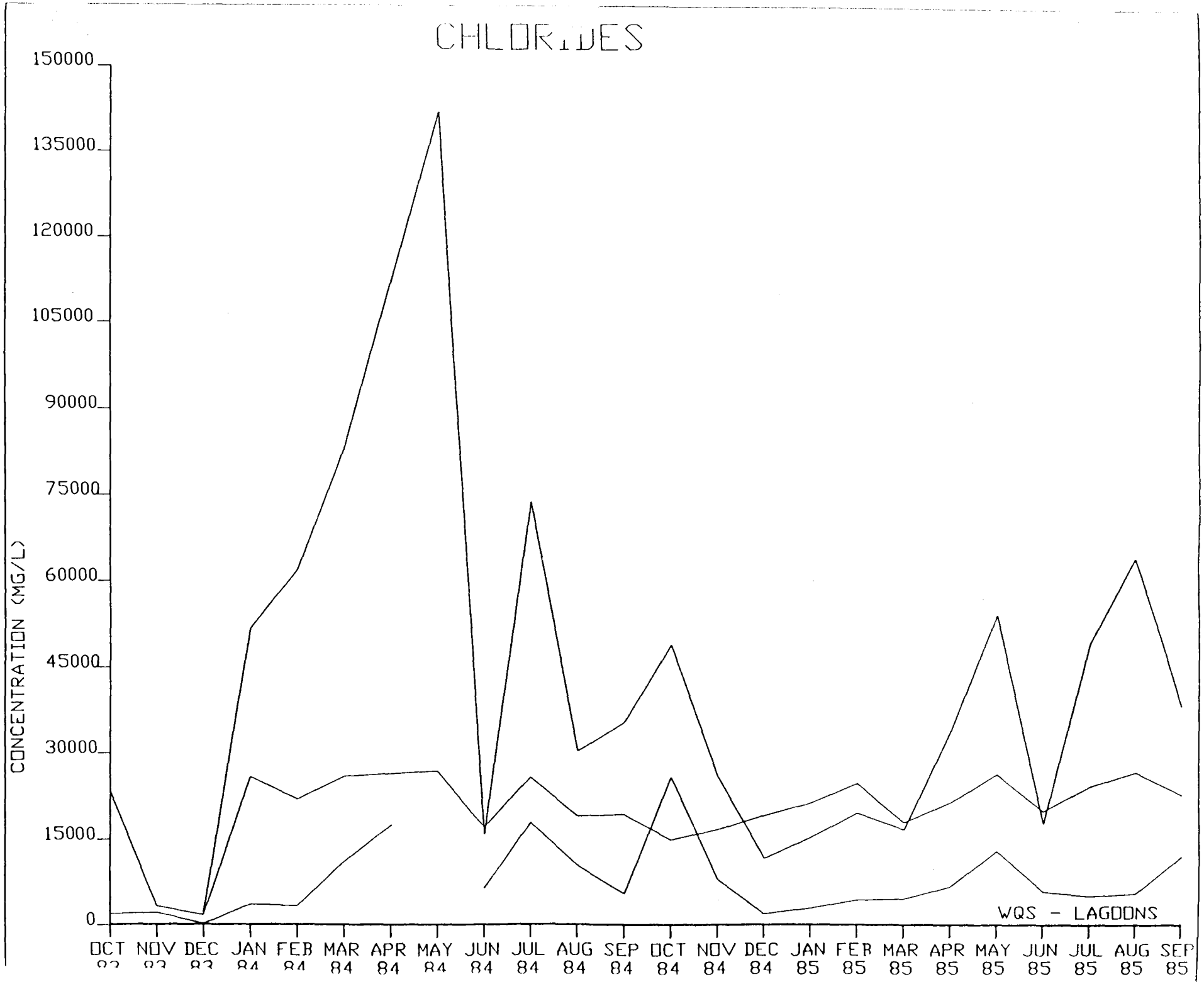
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 NOV 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 DEC 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4 JAN 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 FEB 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 MAR 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 APR 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
14 MAY 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
13 JUN 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 JUL 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 AUG 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
10 SEP 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
OCT 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NOV 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DEC 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
JAN 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
FEB 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 MAR 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
16 APR 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
7 MAY 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4 JUN 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 JUL 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 AUG 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
10 SEP 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHLORIDES

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: 250.0000 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	23500.	41200.	2000.	NR	NR
2 NOV 83	3400.	NS	2200.	NR	NR
5 DEC 83	1800.	2410.	280.	NR	NR
4 JAN 84	26000.	52000.	3700.	NR	NR
6 FEB 84	22000.	62000.	3400.	NR	NR
5 MAR 84	26000.	83300.	11200.	NR	NR
2 APR 84	26500.	112500.	17500.	NR	NR
14 MAY 84	27000.	142000.	NS	NR	NR
13 JUN 84	17100.	15800.	6500.	NR	NR
2 JUL 84	26000.	74000.	18000.	NR	NR
6 AUG 84	19250.	30500.	10500.	NR	NR
10 SEP 84	19500.	35500.	5500.	NR	NR
OCT 84	15000.	49000.	26000.	NR	NR
NOV 84	16800.	26100.	8100.	NR	NR
DEC 84	19300.	11800.	2000.	NR	NR
JAN 85	21500.	15500.	3000.	NR	NR
FEB 85	25000.	19800.	4500.	NR	NR
5 MAR 85	18100.	16850.	4700.	NR	NR
16 APR 85	21600.	34100.	6900.	NR	NR
7 MAY 85	26600.	54300.	13200.	NR	NR
4 JUN 85	20100.	17900.	6000.	NR	NR
2 JUL 85	24500.	49500.	5200.	NR	NR
6 AUG 85	26900.	64200.	5672.	NR	NR
10 SEP 85	22993.	38488.	12246.	NR	NR


CHLORIDES
CONCENTRATION (MG/L)
150000
135000
120000
105000
90000
75000
60000
45000
30000
15000
0
WQS - LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHROMIUM, HEXAVALENT

WATER QUALITY STANDARDS OCEAN : 50.0000 PPB
LAGOONS: 50.0000 PPB

OCEAN

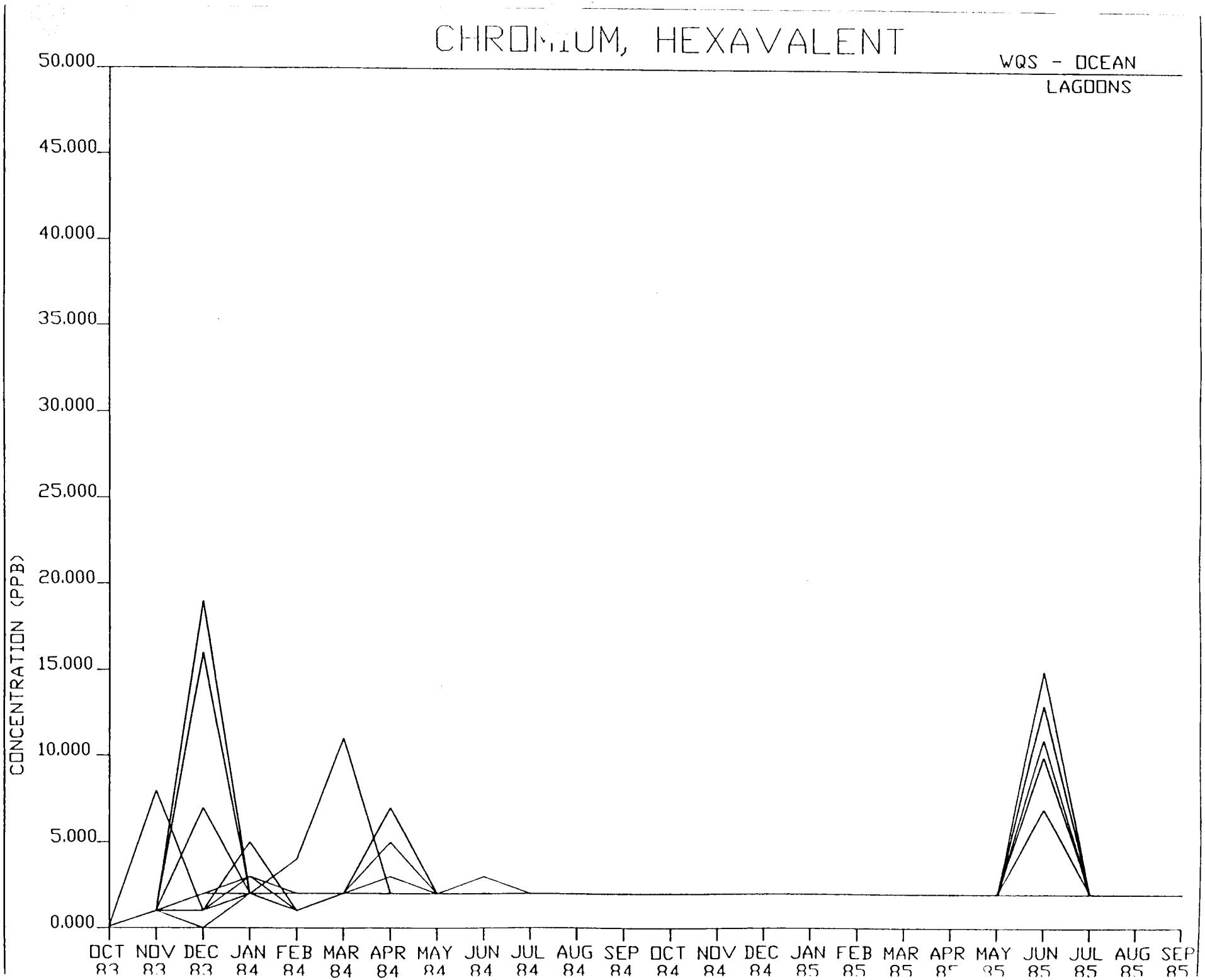
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	< .100	< .100	< .100	< .100	< .100	< .100	< .100	< .100	< .100	< .100
2 NOV 83	< 1.000	< 1.000	8.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
5 DEC 83	.010	< 1.000	< 1.000	< 1.000	2.000	2.000	< 1.000	< 1.000	< 1.000	< 1.000
4 JAN 84	2.000	2.000	5.000	2.000	3.000	2.000	2.000	5.000	3.000	2.000
6 FEB 84	4.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	2.000	2.000
5 MAR 84	11.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
2 APR 84	< 2.000	< 2.000	< 2.000	7.000	2.000	< 2.000	2.000	3.000	5.000	7.000
14 MAY 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
13 JUN 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
2 JUL 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
6 AUG 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
10 SEP 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
OCT 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
NOV 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
DEC 84	< 2.000	< 2.000	NS	NS	NS	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
JAN 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
FEB 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
5 MAR 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
16 APR 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
7 MAY 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
4 JUN 85	10.000	7.000	10.000	13.000	15.000	7.000	7.000	11.000	13.000	10.000
2 JUL 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
6 AUG 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
10 SEP 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHROMIUM, HEXAVALENT

WATER QUALITY STANDARDS OCEAN : 50.0000 PPB
LAGOONS: 50.0000 PPB

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	< .100	< .100	< .100	NS	NS
2 NOV 83	< 1.000	< 1.000	< 1.000	NS	NS
5 DEC 83	16.000	19.000	7.000	NS	NS
4 JAN 84	< 2.000	< 2.000	2.000	NS	NS
6 FEB 84	< 1.000	< 1.000	< 1.000	5.000	NS
5 MAR 84	< 2.000	< 2.000	< 2.000	NS	NS
2 APR 84	< 2.000	< 2.000	< 2.000	< 2.000	NS
14 MAY 84	< 2.000	< 2.000	NS	NS	NS
13 JUN 84	3.000	< 2.000	< 2.000	NS	NS
2 JUL 84	< 2.000	< 2.000	< 2.000	< 2.000	NS
6 AUG 84	< 2.000	< 2.000	< 2.000	< 2.000	NS
10 SEP 84	< 2.000	< 2.000	< 2.000	< 2.000	NS
OCT 84	< 2.000	< 2.000	< 2.000	< 2.000	NS
NOV 84	< 2.000	< 2.000	< 2.000	NS	NS
DEC 84	< 2.000	< 2.000	< 2.000	NS	NS
JAN 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
FEB 85	< 2.000	< 2.000	< 2.000	NS	NS
5 MAR 85	< 2.000	< 2.000	< 2.000	< 2.000	NS
16 APR 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
7 MAY 85	< 2.000	< 2.000	< 2.000	NS	NS
4 JUN 85	< 2.000	< 2.000	< 2.000	8.000	7.000
2 JUL 85	< 2.000	< 2.000	< 2.000	NS	NS
6 AUG 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
10 SEP 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000


CHROMIUM, HEXAVALENT
WQS - OCEAN
LAGOONS
CONCENTRATION (PPB)
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHROMIUM, TOTAL

WATER QUALITY STANDARDS OCEAN : .3000 mg/l
LAGOONS: .3000 mg/l

OCEAN

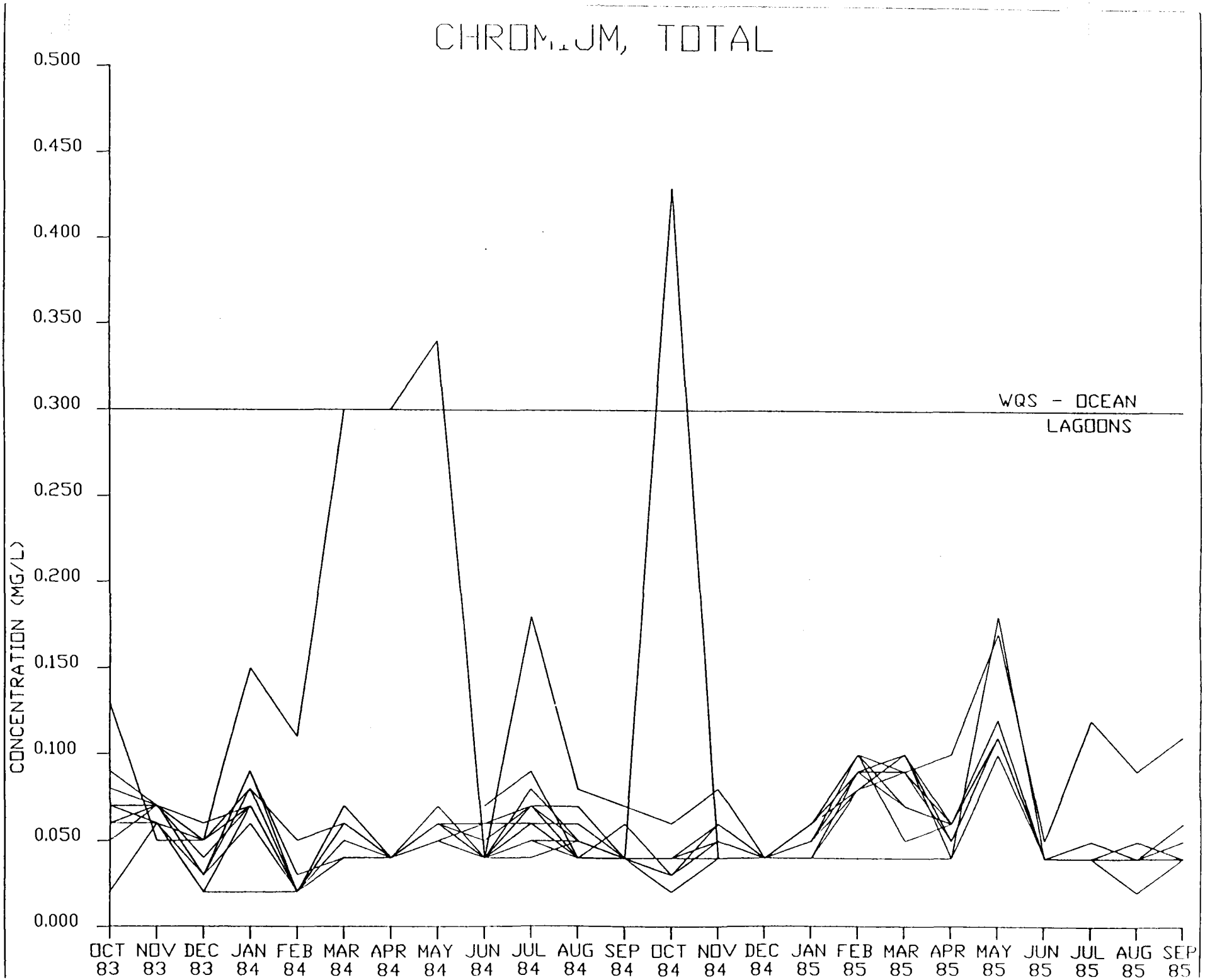
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.090	.060	.080	.070	.070	.070	.050	.060	.060	.060
2 NOV 83	.070	.070	.070	.070	.060	.060	.070	.070	.070	.060
5 DEC 83	.060	.040	.050	.050	.020	.030	.050	.030	.030	.050
4 JAN 84	.070	.070	.080	.080	.070	.090	.070	.090	.060	.070
6 FEB 84	< .020	< .020	< .020	.020	.020	.020	< .020	.030	.020	.020
5 MAR 84	.060	.070	.060	.050	< .040	.060	.070	.040	.060	.060
2 APR 84	< .040	< .040	< .040	< .040	< .040	< .040	< .040	< .040	< .040	< .040
14 MAY 84	.060	.060	.050	.060	.050	.060	.050	.050	.050	.060
13 JUN 84	< .040	.050	.040	.040	.060	.060	< .040	< .040	.040	< .040
2 JUL 84	.060	.070	.040	.050	.060	.070	.060	.060	.070	.070
6 AUG 84	.040	.070	.050	.050	.040	.040	.060	.040	.040	.050
10 SEP 84	.040	.040	.040	.040	.040	.040	.040	.040	< .040	< .040
OCT 84	.040	.040	.430	.040	.040	.030	.030	.040	.040	.030
NOV 84	.050	.040	.040	.050	.050	.050	.060	.060	.050	.050
DEC 84	< .040	< .040	NS	NS	NS	.040	.040	.040	.040	.040
JAN 85	.040	.040	.050	.050	.060	.060	.060	.050	.050	.060
FEB 85	.080	.090	.080	.090	.090	.090	.100	.090	.100	.100
5 MAR 85	.100	.100	.100	.100	.090	.090	.090	.070	.070	.070
16 APR 85	.050	.050	.040	.060	.060	.060	.050	.060	.060	.060
7 MAY 85	.110	.110	.100	.120	.110	.110	.110	.110	.110	.110
4 JUN 85	.040	.040	.040	.040	.040	.040	.040	.040	< .040	.040
2 JUL 85	.040	.040	.040	< .040	.040	< .040	< .040	< .040	.040	.050
6 AUG 85	.040	.050	.040	.040	.040	.040	.040	.040	.040	.040
10 SEP 85	.040	.040	< .040	< .040	< .040	.060	.040	.040	< .040	.040

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CHROMIUM, TOTAL

WATER QUALITY STANDARDS
OCEAN : .3000 mg/l
LAGOONS: .3000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.070	.130	.020	NS	NS
2 NOV 83	.070	.050	.060	NS	NS
5 DEC 83	.030	.050	.020	NS	NS
4 JAN 84	.080	.150	< .020	NS	NS
6 FEB 84	.050	.110	< .020	< .020	NS
5 MAR 84	.060	.300	< .040	NS	NS
2 APR 84	< .040	.300	< .040	< .040	NS
14 MAY 84	.070	.340	NS	NS	NS
13 JUN 84	.040	< .040	.070	NS	NS
2 JUL 84	.080	.180	.090	.050	NS
6 AUG 84	.050	.080	.040	.040	NS
10 SEP 84	< .040	.070	< .040	.060	NS
OCT 84	.030	.060	.020	.030	NS
NOV 84	.050	.080	< .040	NS	NS
DEC 84	< .040	.040	< .040	NS	NS
JAN 85	.060	.060	< .040	.090	.090
FEB 85	.100	.080	.040	NS	NS
5 MAR 85	.050	.090	< .040	.090	NS
16 APR 85	.060	.100	< .040	.050	.050
7 MAY 85	.120	.170	.180	NS	NS
4 JUN 85	< .040	.050	< .040	.040	.040
2 JUL 85	.050	.120	.040	NS	NS
6 AUG 85	.040	.090	< .020	.040	.040
10 SEP 85	.040	.110	< .040	.040	.050


CHROMIUM, TOTAL
CONCENTRATION (MG/L)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: COLOR

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: NO STANDARD

OCEAN

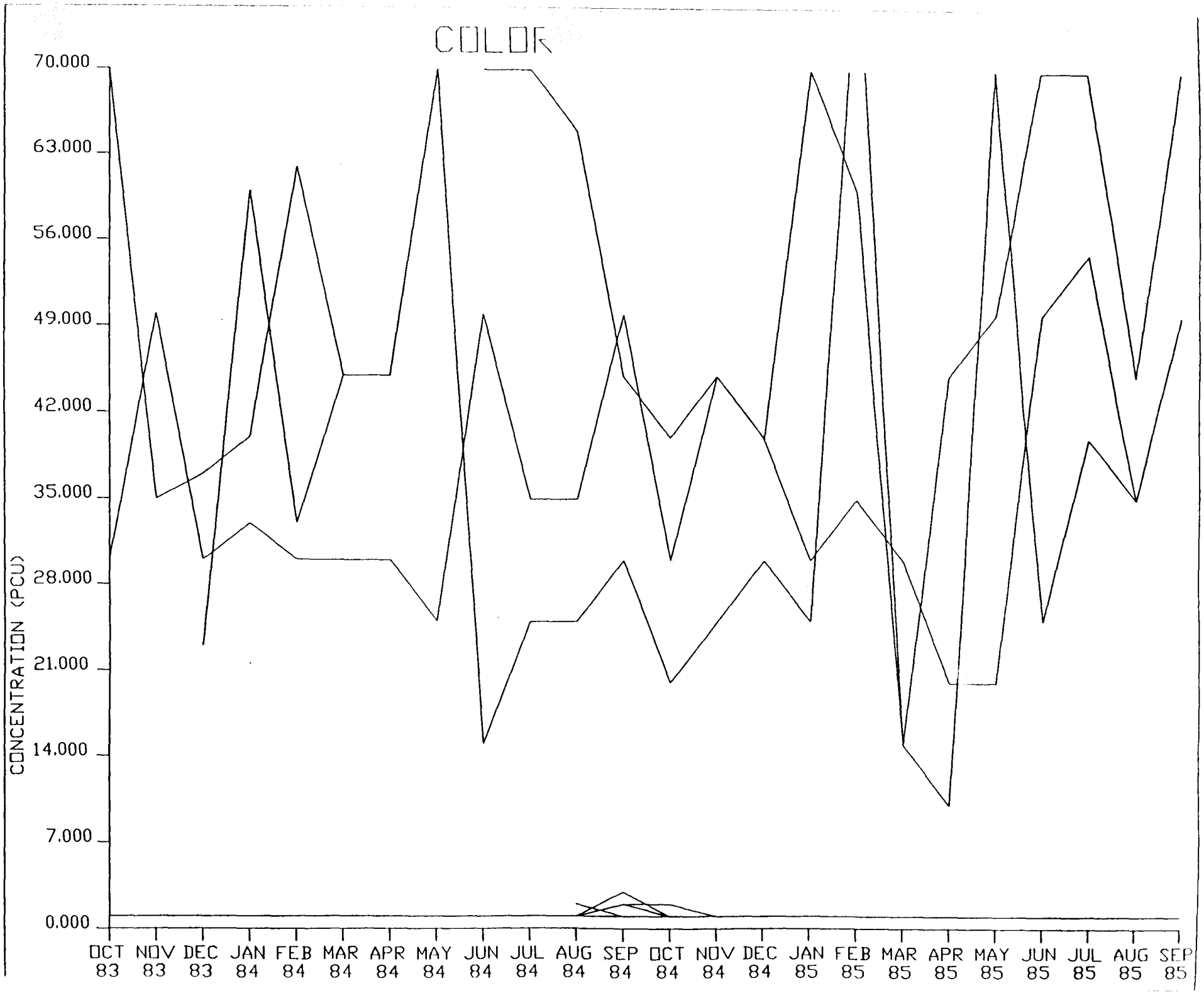
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2 NOV 83	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 DEC 83	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4 JAN 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6 FEB 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 MAR 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2 APR 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
14 MAY 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
13 JUN 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2 JUL 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6 AUG 84	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
10 SEP 84	2.000	3.000	2.000	2.000	1.000	1.000	2.000	1.000	2.000	1.000
OCT 84	1.000	1.000	2.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
NOV 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
DEC 84	1.000	1.000	NS	NS	NS	1.000	1.000	1.000	1.000	1.000
JAN 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
FEB 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
5 MAR 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
16 APR 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
7 MAY 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
4 JUN 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
2 JUL 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
6 AUG 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
10 SEP 85	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: COLOR

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	30.000	45.000	70.000	NS	NS
2 NOV 83	50.000	NS	35.000	NS	NS
5 DEC 83	30.000	23.000	37.000	NS	NS
4 JAN 84	33.000	60.000	40.000	NS	NS
6 FEB 84	30.000	33.000	62.000	1.000	NS
5 MAR 84	30.000	45.000	45.000	NS	NS
2 APR 84	30.000	45.000	45.000	1.000	NS
14 MAY 84	25.000	70.000	NS	NS	NS
13 JUN 84	50.000	15.000	> 70.000	1.000	NS
2 JUL 84	35.000	25.000	> 70.000	NS	NS
6 AUG 84	35.000	25.000	65.000	2.000	NS
10 SEP 84	50.000	30.000	45.000	1.000	NS
OCT 84	30.000	20.000	40.000	1.000	NS
NOV 84	45.000	25.000	45.000	NS	NS
DEC 84	40.000	30.000	40.000	NS	NS
JAN 85	70.000	25.000	30.000	1.000	1.000
FEB 85	60.000	80.000	35.000	NS	NS
5 MAR 85	15.000	15.000	30.000	1.000	NS
16 APR 85	45.000	10.000	20.000	1.000	1.000
7 MAY 85	50.000	> 70.000	20.000	NS	NS
4 JUN 85	> 70.000	25.000	50.000	1.000	1.000
2 JUL 85	> 70.000	40.000	55.000	NS	NS
6 AUG 85	45.000	35.000	35.000	1.000	1.000
10 SEP 85	> 70.000	50.000	50.000	1.000	1.000


COLOR
CONCENTRATION (PCU)
70.000
63.000
56.000
49.000
42.000
35.000
28.000
21.000
14.000
7.000
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: COPPER

WATER QUALITY STANDARDS OCEAN : .0500 mg/l
LAGOONS: .0400 mg/l

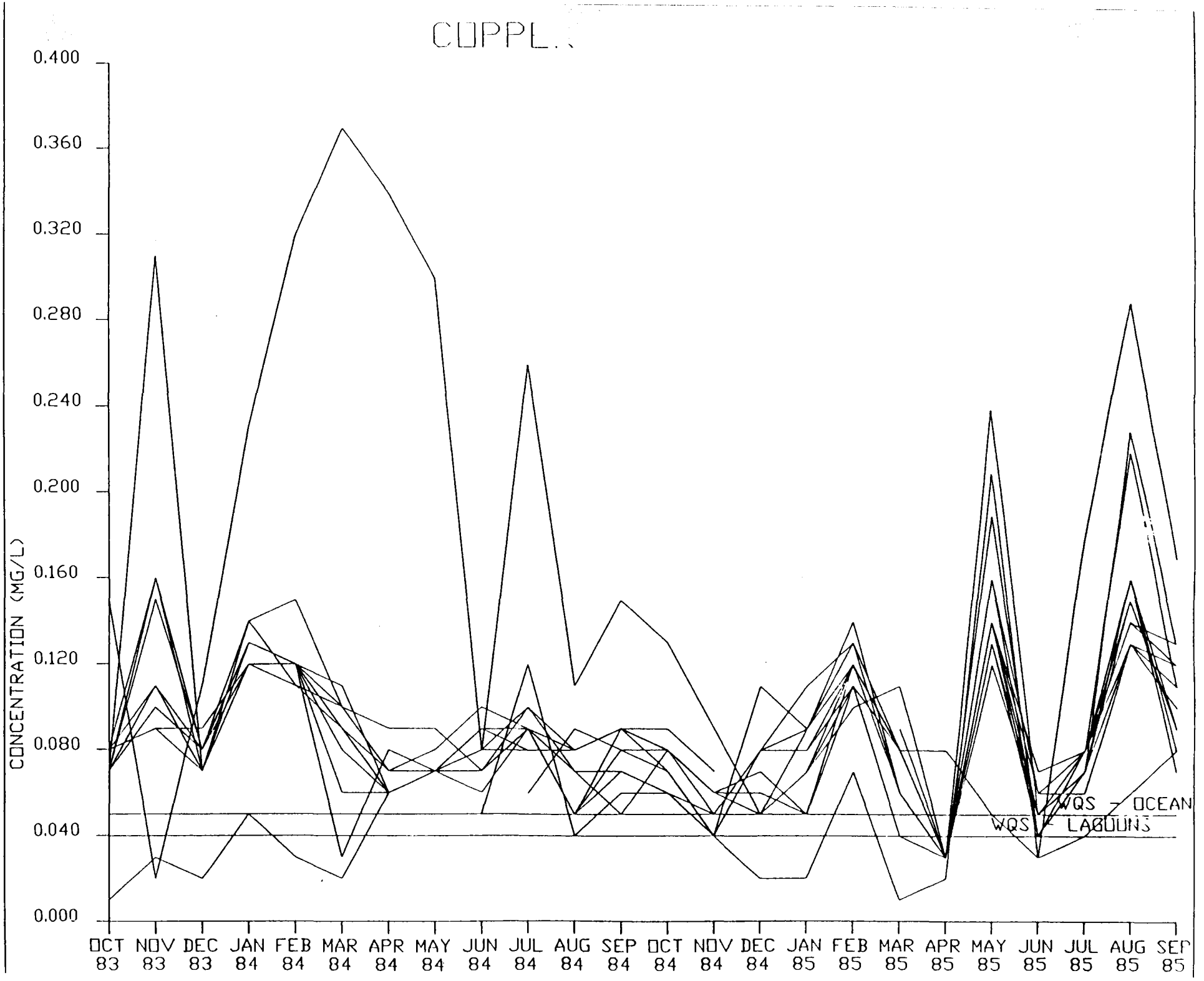
DATE	OCEAN									
	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.080	.070	.080	.070	.080	.070	.070	.070	.070	.070
2 NOV 83	.090	.310	.090	.100	.160	.110	.100	.160	.110	.150
5 DEC 83	.090	.070	.070	.080	.080	.070	.080	.070	.070	.080
4 JAN 84	.120	.140	.120	.120	.130	.130	.130	.120	.130	.130
6 FEB 84	.120	.110	.110	.120	.120	.120	.120	.120	.120	.120
5 MAR 84	.100	.100	.090	.080	.030	.090	.110	.060	.090	.090
2 APR 84	.070	.070	.070	.060	.080	.060	.060	.060	.060	.060
14 MAY 84	.080	.070	.070	.070	.070	.070	.070	.070	.070	.070
13 JUN 84	.100	.090	.090	.080	.080	.070	.070	.060	.070	.070
2 JUL 84	.090	.090	.080	.100	.080	.090	.090	.090	.090	.090
6 AUG 84	.080	.080	.080	.080	.080	.070	.070	.050	.050	.050
10 SEP 84	.090	.090	.090	.090	.090	.070	.070	.070	.090	.080
OCT 84	.080	.080	.080	.090	.080	.060	.060	.060	.070	.070
NOV 84	.060	.060	.050	.070	.060	.040	.050	.040	.040	.040
DEC 84	.070	.060	NS	NS	NS	.110	.080	.080	.080	.080
JAN 85	.050	.050	.070	.080	.070	.090	.090	.090	.080	.110
FEB 85	.120	.110	.100	.110	.120	.120	.130	.130	.120	.130
5 MAR 85	.080	.080	.110	.040	.080	.080	.080	.080	.060	.060
16 APR 85	.030	.030	.030	.030	.030	.030	.030	.030	.030	.030
7 MAY 85	.240	.160	.190	.140	.130	.140	.140	.130	.120	.140
4 JUN 85	.050	.040	.040	.040	.040	.070	.060	.050	.050	.050
2 JUL 85	.070	.070	.080	.080	.070	.080	.060	.070	.080	.070
6 AUG 85	.160	.160	.150	.160	.150	.130	.130	.230	.220	.130
10 SEP 85	.080	.070	.090	.090	.090	.110	.120	.130	.110	.100

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: COPPER

WATER QUALITY STANDARDS OCEAN : .0500 mg/l
LAGOONS: .0400 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.080	.150	.010	NS	NS
2 NOV 83	.110	.020	.030	NS	NS
5 DEC 83	.080	.110	.020	NS	NS
4 JAN 84	.140	.230	.050	NS	NS
6 FEB 84	.150	.320	.030	.120	NS
5 MAR 84	.100	.370	.020	NS	NS
2 APR 84	.090	.340	.060	.060	NS
14 MAY 84	.090	.300	NS	NS	NS
13 JUN 84	.070	.080	.050	NS	NS
2 JUL 84	.100	.260	.120	.060	NS
6 AUG 84	.070	.110	.040	.090	NS
10 SEP 84	.050	.150	.060	.080	NS
OCT 84	.080	.130	.060	.080	NS
NOV 84	.060	.090	.040	NS	NS
DEC 84	.050	.050	.020	NS	NS
JAN 85	.090	.070	.020	.110	.120
FEB 85	.140	.110	.070	NS	NS
5 MAR 85	.060	.080	.010	.090	NS
16 APR 85	.030	.080	.020	.030	.040
7 MAY 85	.160	.050	.210	NS	NS
4 JUN 85	.060	.030	.030	.050	.050
2 JUL 85	.080	.180	.040	NS	NS
6 AUG 85	.140	.290	.060	.140	.140
10 SEP 85	.120	.170	.080	.120	.130


COPPL.
CONCENTRATION (MG/L)
0.400
0.360
0.320
0.280
0.240
0.200
0.160
0.120
0.080
0.040
0.000
WQS - OCEAN
WQS - LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CYANIDE

WATER QUALITY STANDARDS OCEAN : 20.0000 PPB
LAGOONS: 200.0000 PPB

OCEAN

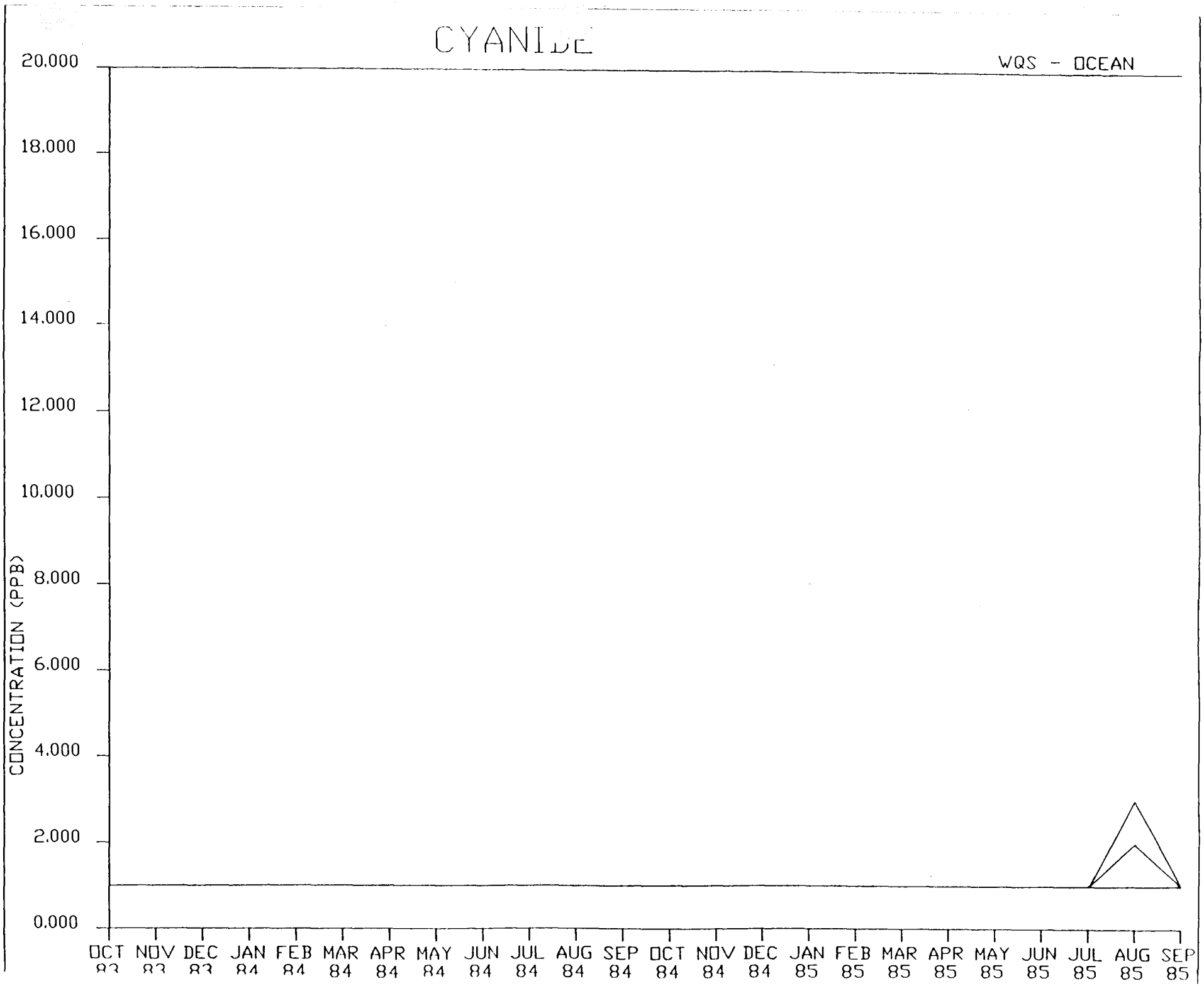
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 NOV 83	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
5 DEC 83	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
4 JAN 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
6 FEB 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
5 MAR 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 APR 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
14 MAY 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
13 JUN 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 JUL 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
6 AUG 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
10 SEP 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
OCT 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
NOV 84	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
DEC 84	< 1.000	< 1.000	NS	NS	NS	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
JAN 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
FEB 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
5 MAR 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
16 APR 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
7 MAY 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
4 JUN 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 JUL 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
6 AUG 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
10 SEP 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: CYANIDE

WATER QUALITY STANDARDS OCEAN : 20.0000 PPB
LAGOONS: 200.0000 PPB

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	< 1.000	< 1.000	< 1.000	NS	NS
2 NOV 83	< 1.000	< 1.000	< 1.000	NS	NS
5 DEC 83	< 1.000	< 1.000	< 1.000	NS	NS
4 JAN 84	< 1.000	< 1.000	< 1.000	NS	NS
6 FEB 84	< 1.000	< 1.000	< 1.000	2.000	NS
5 MAR 84	< 1.000	< 1.000	< 1.000	NS	NS
2 APR 84	1.000	< 1.000	< 1.000	< 1.000	NS
14 MAY 84	< 1.000	< 1.000	NS	NS	NS
13 JUN 84	< 1.000	< 1.000	< 1.000	NS	NS
2 JUL 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
6 AUG 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
10 SEP 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
OCT 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
NOV 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
DEC 84	< 1.000	< 1.000	< 1.000	NS	NS
JAN 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
FEB 85	< 1.000	< 1.000	< 1.000	NS	NS
5 MAR 85	< 1.000	< 1.000	< 1.000	< 1.000	NS
16 APR 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
7 MAY 85	< 1.000	< 1.000	< 1.000	NS	NS
4 JUN 85	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 JUL 85	< 1.000	< 1.000	< 1.000	NS	NS
6 AUG 85	3.000	2.000	< 1.000	< 1.000	< 1.000
10 SEP 85	1.000	< 1.000	< 1.000	< 1.000	< 1.000


CYANIDE
WQS - OCEAN
CONCENTRATION (PPB)
20.000
18.000
16.000
14.000
12.000
10.000
8.000
6.000
4.000
2.000
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: DISSOLVED OXYGEN

WATER QUALITY STANDARDS OCEAN : 5.0000 mg/l
LAGOONS: 5.0000 mg/l

OCEAN

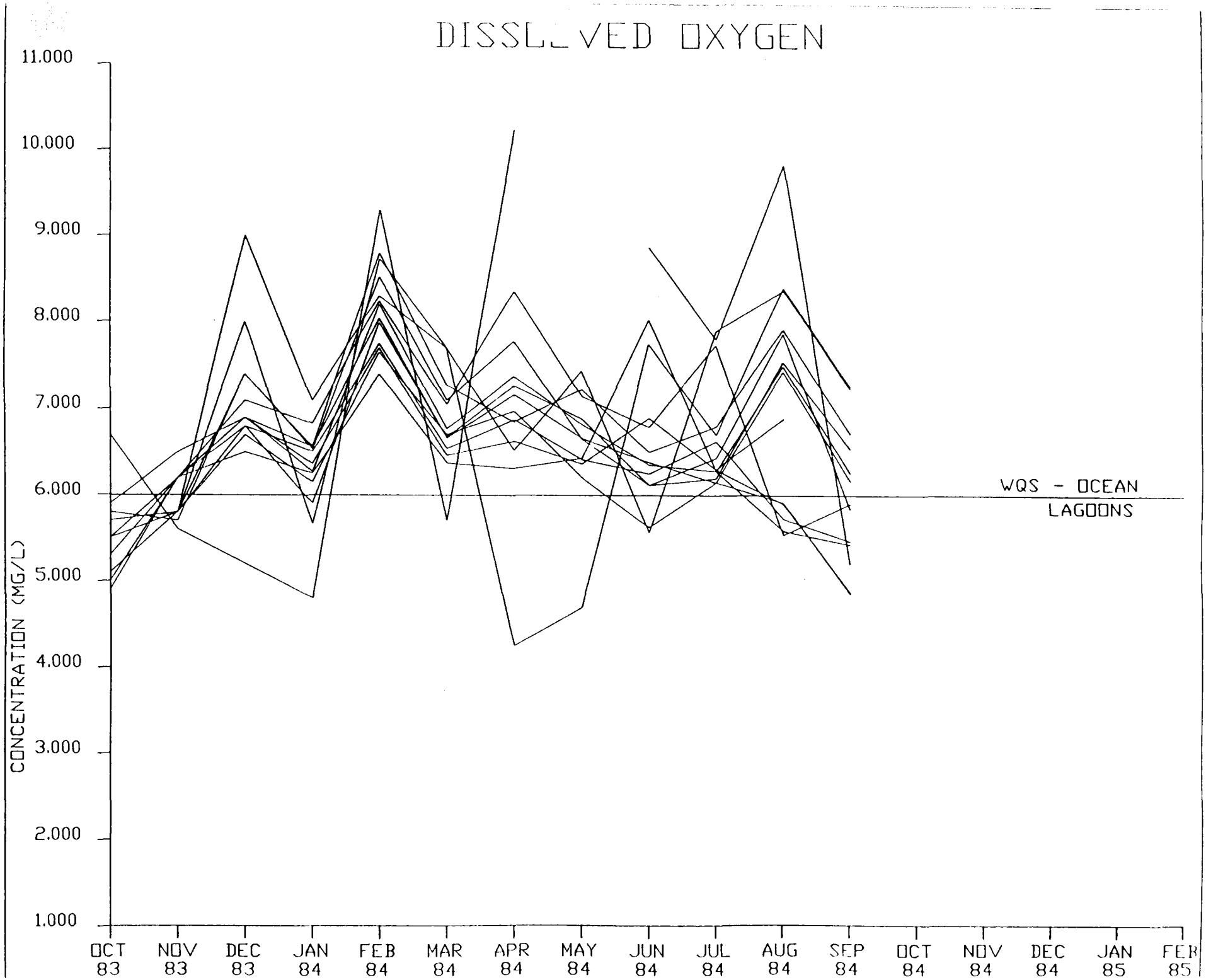
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	4.900	5.000	5.300	5.500	5.500	5.500	5.500	5.100	5.800	5.900
2 NOV 83	6.200	6.200	6.200	6.200	6.200	5.800	5.800	5.800	5.700	6.500
5 DEC 83	6.500	7.100	6.800	6.900	6.900	6.800	7.400	6.700	7.400	6.900
4 JAN 84	6.250	6.830	6.500	6.360	6.560	5.900	6.530	6.150	6.560	6.270
6 FEB 84	7.400	8.240	7.750	7.700	8.040	7.990	8.520	7.650	8.800	8.200
5 MAR 84	6.370	7.050	6.540	6.460	6.660	6.670	7.100	6.700	7.280	6.770
2 APR 84	6.310	8.360	6.880	6.630	7.170	7.270	7.780	6.980	6.850	7.380
14 MAY 84	6.430	7.150	6.410	6.360	6.660	6.890	6.650	6.210	7.230	6.820
13 JUN 84	8.030	6.790	6.250	6.900	6.380	6.120	6.120	5.620	6.500	6.350
2 JUL 84	6.280	7.740	6.630	6.300	6.150	6.430	6.200	6.150	6.800	6.280
6 AUG 84	5.580	5.530	5.720	5.900	5.910	7.870	7.550	7.440	7.920	7.500
10 SEP 84	5.420	5.900	5.460	4.870	4.850	5.840	6.540	6.170	6.720	6.260
OCT 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: DISSOLVED OXYGEN

WATER QUALITY STANDARDS
OCEAN : 5.0000 mg/l
LAGOONS: 5.0000 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	5.700	5.500	6.700	NS	NS
2 NOV 83	5.800	5.800	5.600	NS	NS
5 DEC 83	8.000	9.000	5.200	NS	NS
4 JAN 84	5.660	7.090	4.800	NS	NS
6 FEB 84	8.730	8.300	9.300	7.230	NS
5 MAR 84	7.700	7.700	5.700	NS	NS
2 APR 84	6.520	4.250	10.230	7.700	NS
14 MAY 84	7.440	4.700	NS	NS	NS
13 JUN 84	5.560	7.750	8.870	NS	NS
2 JUL 84	7.900	6.700	7.800	6.300	NS
6 AUG 84	8.370	8.400	9.840	6.890	NS
10 SEP 84	7.240	7.270	5.200	NS	NS
OCT 84	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS


DISSOLVED OXYGEN
CONCENTRATION (MG/L)
11.000
10.000
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: FLUORIDE

WATER QUALITY STANDARDS OCEAN : 1.3000 mg/l
LAGOONS: .7000 mg/l

OCEAN

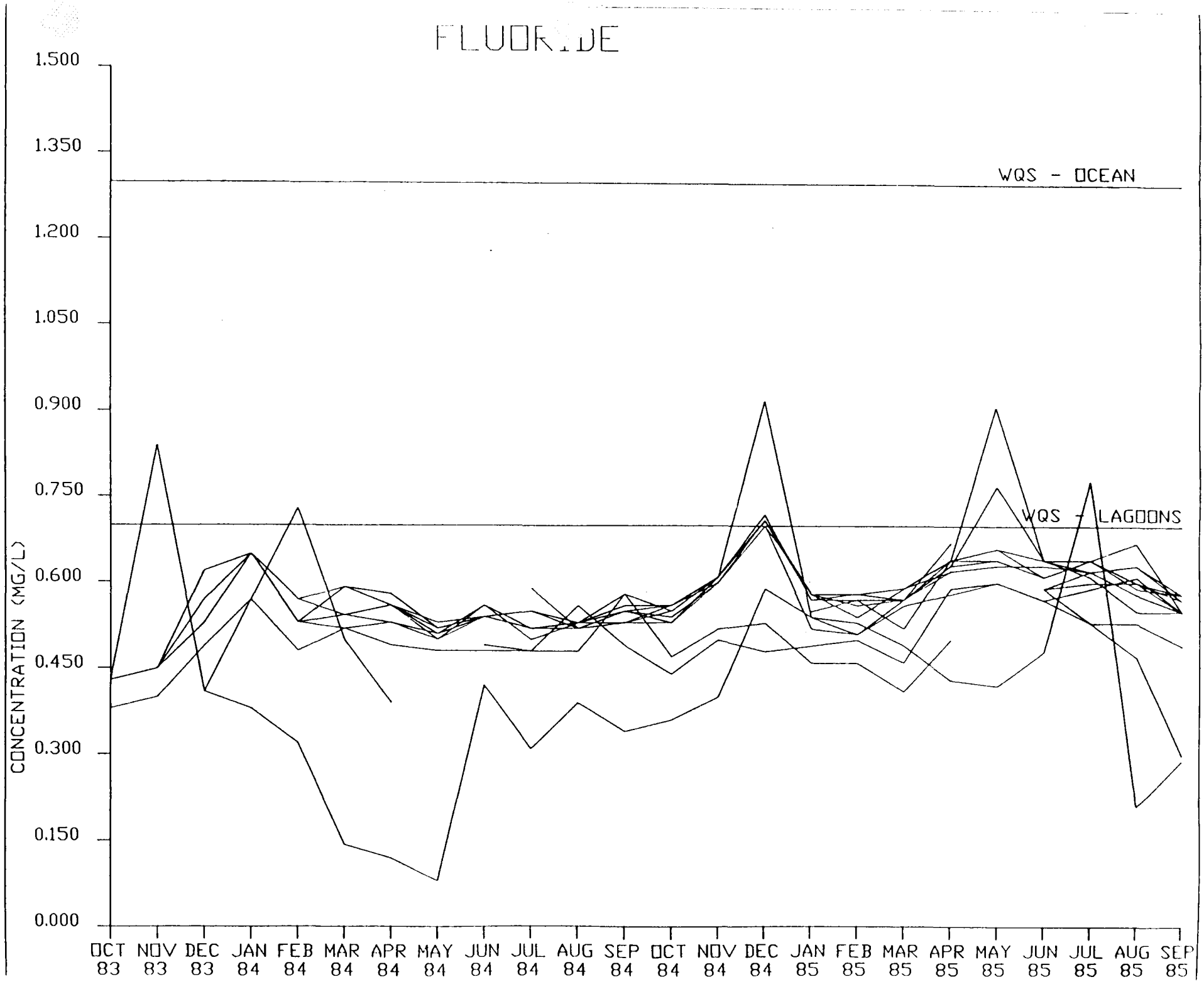
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.430	.430	.430	.430	.430	.430	.430	.430	.430	.430
2 NOV 83	.450	.450	.450	.450	.450	.450	.450	.450	.450	.450
5 DEC 83	.530	.620	.620	.620	.570	.620	.620	.620	.530	.570
4 JAN 84	.650	.650	.650	.650	.650	.650	.650	.650	.650	.650
6 FEB 84	.530	.530	.530	.530	.570	.530	.530	.570	.530	.530
5 MAR 84	.520	.543	.543	.543	.543	.543	.592	.592	.592	.592
2 APR 84	.530	.530	.560	.560	.560	.560	.560	.560	.580	.580
14 MAY 84	.510	.500	.510	.510	.500	.520	.530	.520	.520	.520
13 JUN 84	.540	.540	.560	.540	.560	.540	.540	.540	.540	.540
2 JUL 84	.550	.550	.520	.520	.500	.520	.520	.550	.520	.550
6 AUG 84	.520	.520	.520	.530	.530	.530	.530	.530	.530	.530
10 SEP 84	.530	.550	.550	.530	.580	.550	.550	.550	.560	.560
OCT 84	.530	.530	.560	.550	.550	.530	.540	.560	.560	.560
NOV 84	.600	.610	.610	.610	.610	.610	.600	.610	.600	.610
DEC 84	.700	.920	NS	NS	NS	.720	.700	.710	.710	.710
JAN 85	.520	.540	.550	.550	.580	.570	.580	.580	.580	.570
FEB 85	.510	.510	.570	NS	.540	.570	.560	.580	.580	.580
5 MAR 85	.560	.570	.570	.590	.590	.520	.570	.570	.590	.570
16 APR 85	.580	.620	.620	.620	.640	.640	.630	.640	.640	.630
7 MAY 85	.600	NS	NS	.630	.640	.660	.640	.660	.910	.770
4 JUN 85	.570	.590	.590	.630	.610	.610	.610	.640	.640	.640
2 JUL 85	.590	.600	.620	.620	.640	.640	.640	.640	.620	.610
6 AUG 85	.610	.600	.630	.630	.590	.600	.670	.600	.580	.550
10 SEP 85	.550	.570	.570	.580	.580	.580	.550	.550	.550	.550

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: FLUORIDE

WATER QUALITY STANDARDS OCEAN : 1.3000 mg/l
LAGOONS: .7000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.380	.280	.430	NS	NS
2 NOV 83	.400	NS	.840	NS	NS
5 DEC 83	.490	.410	.410	NS	NS
4 JAN 84	.570	.380	.570	NS	NS
6 FEB 84	.480	.320	.730	.605	NS
5 MAR 84	.520	.143	.499	NS	NS
2 APR 84	.490	.120	.390	.560	NS
14 MAY 84	.480	.080	NS	NS	NS
13 JUN 84	.480	.420	.490	NS	NS
2 JUL 84	.480	.310	.480	.590	NS
6 AUG 84	.480	.390	.560	.520	NS
10 SEP 84	.580	.340	.490	.530	NS
OCT 84	.470	.360	.440	.560	NS
NOV 84	.520	.400	.500	NS	NS
DEC 84	.530	.590	.480	NS	NS
JAN 85	.460	.540	.490	.510	.550
FEB 85	.460	.530	.500	NS	NS
5 MAR 85	.410	.490	.460	.570	NS
16 APR 85	.500	.430	.590	.670	.640
7 MAY 85	NS	.420	.600	NS	NS
4 JUN 85	.590	.480	.570	.610	.630
2 JUL 85	.530	.780	.530	NS	NS
6 AUG 85	.530	.210	.470	.580	.580
10 SEP 85	.490	.290	.300	.550	.550


FLUORIDE
1.500
1.350
1.200
1.050
0.900
0.750
0.600
0.450
0.300
0.150
0.000
CONCENTRATION (MG/L)
WQS - OCEAN
WQS - LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: IRON

WATER QUALITY STANDARDS OCEAN : .2000 mg/l
LAGOONS: .2000 mg/l

OCEAN

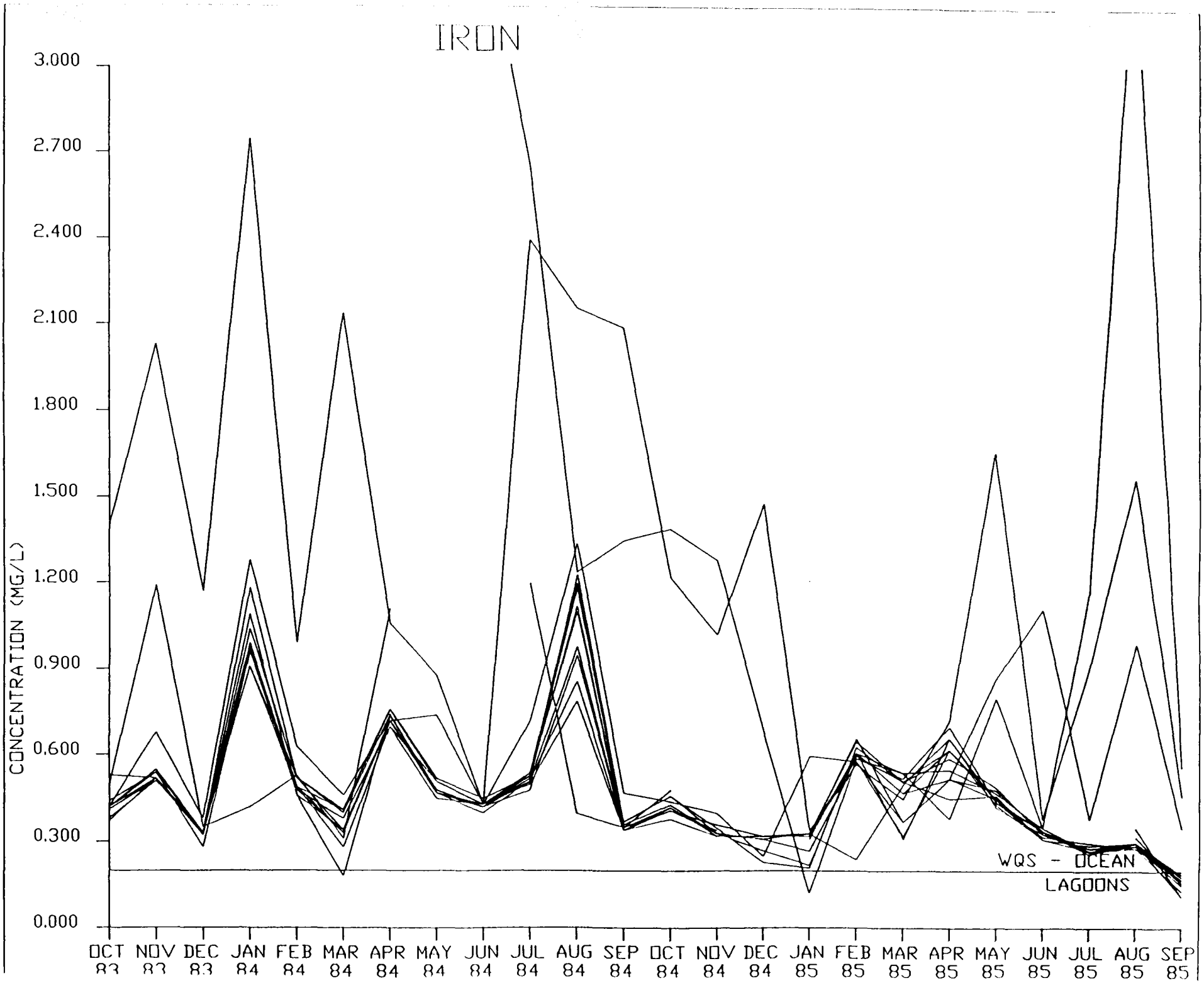
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.530	.420	.440	.420	.410	.420	.370	.410	.410	.380
2 NOV 83	.520	.540	.540	.550	.510	.520	.520	.520	.510	.510
5 DEC 83	.330	.280	.330	.330	.330	.320	.330	.320	.330	.330
4 JAN 84	1.180	.960	.910	.910	.970	1.040	.990	.960	.960	1.090
6 FEB 84	.520	.490	.520	.480	.460	.520	.480	.490	.490	.460
5 MAR 84	.410	.410	.340	.330	.180	.400	.380	.280	.330	.340
2 APR 84	.760	.760	.720	.720	.740	.740	.700	.700	.720	.720
14 MAY 84	.520	.510	.470	.480	.470	.480	.510	.450	.470	.480
13 JUN 84	.450	.430	.430	.420	.420	.420	.430	.430	.400	.420
2 JUL 84	.530	.530	.510	.520	.510	.530	.540	.500	.510	.480
6 AUG 84	1.230	1.180	1.190	1.120	.980	1.100	1.200	.790	.860	.950
10 SEP 84	.370	.370	.360	.350	.350	.340	.350	.340	.340	.340
OCT 84	.460	.460	.430	.410	.420	.410	.410	.420	.410	.380
NOV 84	.330	.350	.330	.340	.320	.360	.360	.330	.330	.320
DEC 84	.270	.230	NS	NS	NS	.320	.320	.310	.310	.320
JAN 85	.220	.210	.330	.330	.310	.320	.330	.330	.270	.330
FEB 85	.610	.630	.650	.240	.600	.610	.590	.660	.580	.610
5 MAR 85	.540	.510	.510	.500	.510	.470	.520	.370	.320	.310
16 APR 85	.550	.620	.590	.660	.450	.520	.700	.520	.620	.660
7 MAY 85	.470	.450	.490	.440	.460	.480	.440	.450	.430	.420
4 JUN 85	.350	.340	.330	.320	.310	.340	.340	.310	.310	.330
2 JUL 85	.270	.270	.280	.300	.290	.260	.280	.270	.270	.270
6 AUG 85	.280	.300	.300	.280	.300	.300	.290	.290	.280	.300
10 SEP 85	.190	.180	.160	.190	.190	.170	.170	.150	.130	.110

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND PUERTO RICO
WATER QUALITY STUDY

PARAMETER: IRON

WATER QUALITY STANDARDS OCEAN : .2000 mg/l
LAGOONS: .2000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.420	1.400	.490	NS	NS
2 NOV 83	.680	2.030	1.190	NS	NS
5 DEC 83	.380	1.170	.350	NS	NS
4 JAN 84	1.280	2.750	.420	NS	NS
6 FEB 84	.630	.990	.530	.530	NS
5 MAR 84	.460	2.140	.310	NS	NS
2 APR 84	.720	1.060	1.110	.880	NS
14 MAY 84	.740	.880	NS	NS	NS
13 JUN 84	.430	.430	3.500	NS	NS
2 JUL 84	.720	2.400	2.660	1.200	NS
6 AUG 84	1.340	2.160	1.240	.400	NS
10 SEP 84	.470	2.090	1.350	.350	NS
OCT 84	.440	1.220	1.390	.480	NS
NOV 84	.400	1.020	1.280	NS	NS
DEC 84	.250	1.480	.680	NS	NS
JAN 85	.600	.340	.120	.650	.600
FEB 85	.580	.570	.590	NS	NS
5 MAR 85	.370	.450	.540	.470	NS
16 APR 85	.520	.720	.380	.620	.530
7 MAY 85	.870	1.660	.800	NS	NS
4 JUN 85	1.110	.380	.350	.360	.360
2 JUL 85	.380	.910	1.170	NS	NS
6 AUG 85	.990	1.570	3.420	.350	.320
10 SEP 85	.350	.460	.560	.110	.160


IRON
CONCENTRATION (MG/L)
3.000
2.700
2.400
2.100
1.800
1.500
1.200
0.900
0.600
0.300
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: LEAD

WATER QUALITY STANDARDS OCEAN : .0150 mg/l
LAGOONS: .0150 mg/l

OCEAN

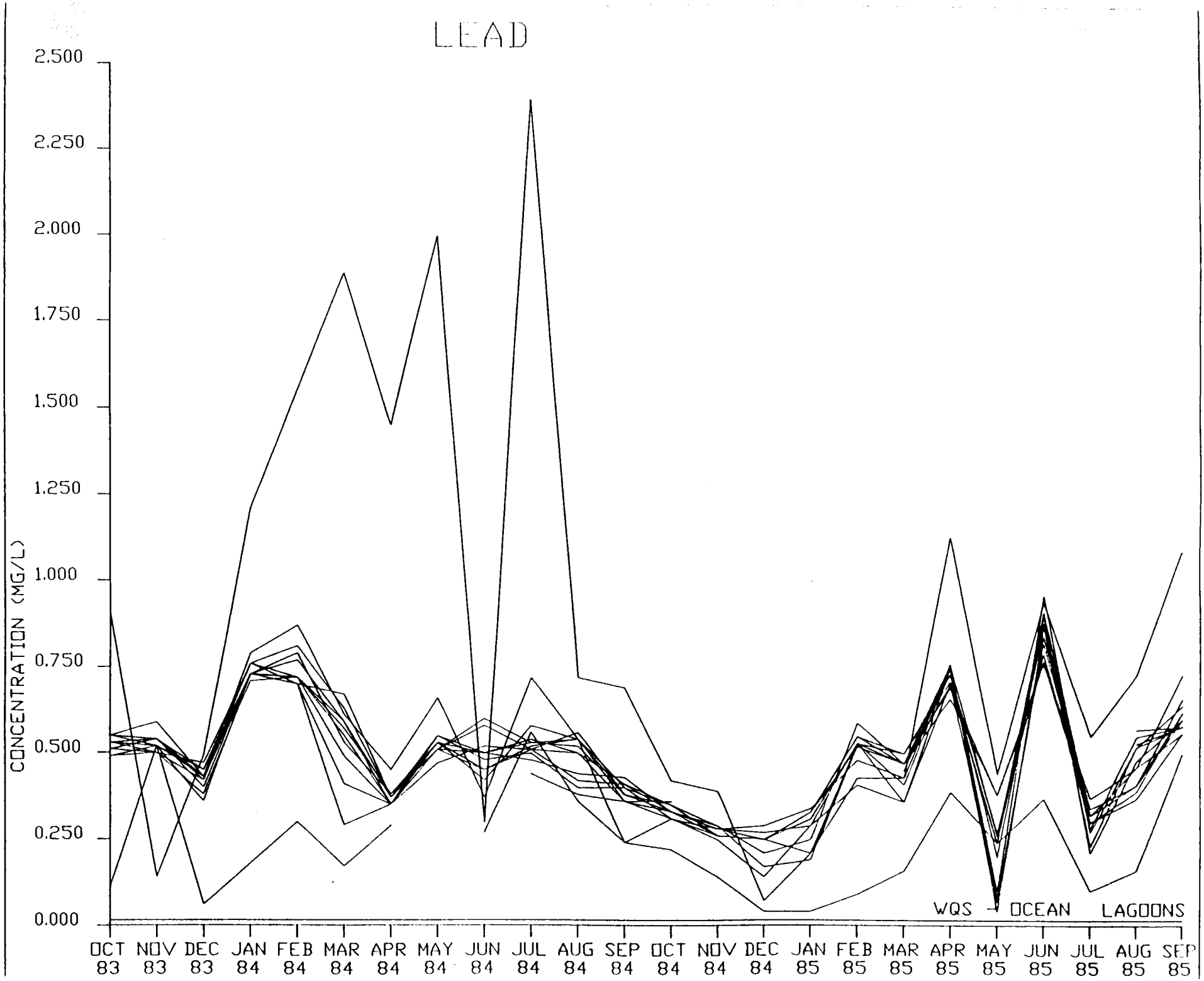
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.550	.490	.510	.550	.530	.510	.510	.530	.530	.490
2 NOV 83	.520	.500	.500	.540	.500	.540	.540	.540	.520	.520
5 DEC 83	.430	.380	.470	.400	.420	.450	.420	.430	.450	.360
4 JAN 84	.760	.710	.760	.730	.730	.760	.730	.730	.730	.730
6 FEB 84	.700	.720	.720	.720	.700	.810	.770	.700	.790	.720
5 MAR 84	.670	.590	.550	.490	.290	.630	.590	.410	.530	.570
2 APR 84	.370	.350	.350	.350	.350	.370	.370	.350	.380	.380
14 MAY 84	.530	.510	.470	.530	.510	.510	.550	.550	.510	.530
13 JUN 84	.420	.500	.520	.450	.450	.600	.500	.480	.580	.500
2 JUL 84	.580	.530	.510	.520	.510	.530	.540	.500	.510	.480
6 AUG 84	.540	.540	.560	.540	.500	.520	.500	.400	.420	.440
10 SEP 84	.360	.400	.380	.380	.360	.380	.410	.400	.410	.430
OCT 84	.330	.350	.330	.350	.310	.330	.350	.310	.330	.330
NOV 84	.290	.290	.290	.260	.260	.280	.260	.280	.260	.280
DEC 84	.210	.170	NS	NS	NS	.250	.250	.290	.250	.270
JAN 85	.250	.190	.330	.310	.330	.330	.310	.340	.210	.290
FEB 85	.590	.520	.550	.530	.550	.520	.530	.480	.530	.410
5 MAR 85	.470	.470	.500	.470	.470	.470	.500	.430	.410	.360
16 APR 85	.660	.690	.730	.760	.700	.730	.710	.760	.750	.750
7 MAY 85	.380	.380	.270	.080	.070	.200	.240	.260	< .040	.100
4 JUN 85	.760	.770	.790	.820	.840	.880	.900	.910	.870	.960
2 JUL 85	.370	.300	.300	.320	.340	.320	.210	.320	.230	.270
6 AUG 85	.460	.390	.370	.410	.410	.460	.480	.410	.520	.520
10 SEP 85	.560	.620	.560	.660	.600	.730	.600	.620	.640	.580

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: LEAD

WATER QUALITY STANDARDS OCEAN : .0150 mg/l
LAGOONS: .0150 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.550	.910	.110	NS	NS
2 NOV 83	.590	.140	.520	NS	NS
5 DEC 83	.430	.490	.060	NS	NS
4 JAN 84	.790	1.210	.180	NS	NS
6 FEB 84	.870	1.550	.300	.790	NS
5 MAR 84	.610	1.890	.170	NS	NS
2 APR 84	.450	1.450	.290	.380	NS
14 MAY 84	.660	2.000	NS	NS	NS
13 JUN 84	.370	.300	.270	NS	NS
2 JUL 84	.720	2.400	.560	.440	NS
6 AUG 84	.540	.720	.360	.380	NS
10 SEP 84	.240	.690	.240	.360	NS
OCT 84	.310	.420	.220	.360	NS
NOV 84	.250	.390	.140	NS	NS
DEC 84	.140	.070	.040	NS	NS
JAN 85	.290	.210	.040	.450	.470
FEB 85	.530	.430	.090	NS	NS
5 MAR 85	.360	.430	.160	.450	NS
16 APR 85	.700	1.130	.390	.750	.760
7 MAY 85	.240	.440	.240	NS	NS
4 JUN 85	.870	.940	.370	.990	1.030
2 JUL 85	.280	.550	.100	NS	NS
6 AUG 85	.550	.730	.160	.530	.570
10 SEP 85	.580	1.090	.500	.580	.580


LEAD
CONCENTRATION (MG/L)
2.500
2.250
2.000
1.750
1.500
1.250
1.000
0.750
0.500
0.250
0.000
WQS
OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: MANGANESE

WATER QUALITY STANDARDS OCEAN : .1000 mg/l
LAGOONS: NO STANDARD

OCEAN

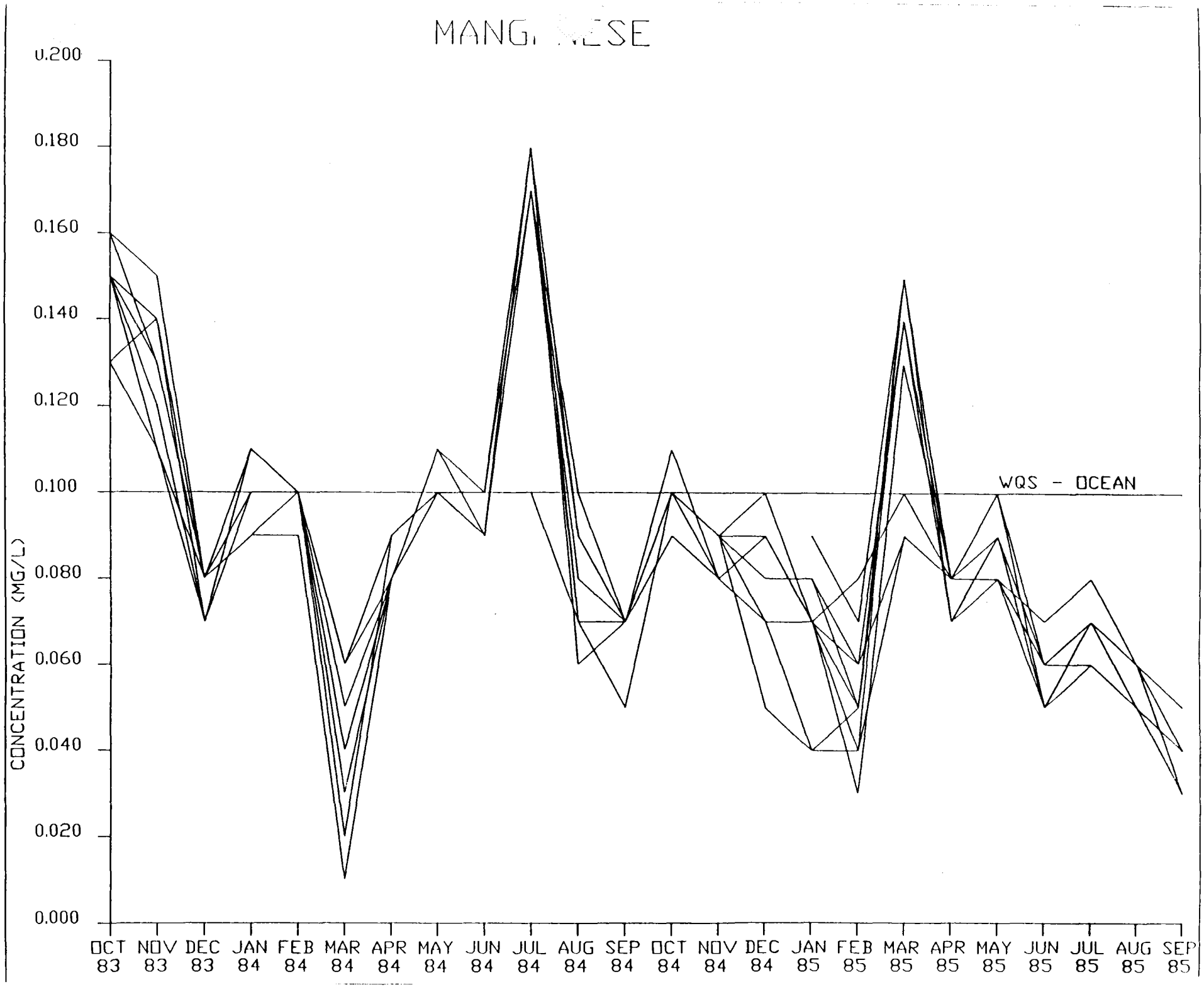
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.160	.150	.160	.150	.150	.150	.130	.150	.150	.130
2 NOV 83	.150	.140	.130	.140	.130	.120	.110	.110	.110	.140
5 DEC 83	.080	.080	.080	.070	.080	.070	.080	.070	.080	.070
4 JAN 84	.110	.110	.090	.100	.090	.110	.100	.110	.100	.110
6 FEB 84	.100	.100	.100	.100	.090	.100	.100	.100	.100	.100
5 MAR 84	.060	.060	.040	.030	.010	.060	.060	.020	.050	.040
2 APR 84	.080	.090	.080	.080	.080	.090	.090	.090	.080	.080
14 MAY 84	.110	.100	.100	.110	.100	.100	.100	.100	.100	.100
13 JUN 84	.100	.100	.090	.090	.090	.100	.090	.090	.090	.090
2 JUL 84	.180	.180	.170	.170	.170	.170	.180	.180	.180	.170
6 AUG 84	.090	.090	.100	.090	.070	.090	.090	.060	.070	.080
10 SEP 84	.070	.070	.070	.070	.070	.070	.070	.070	.070	.070
OCT 84	.100	.100	.100	.110	.090	.090	.100	.100	.100	.100
NOV 84	.080	.090	.080	.080	.080	.080	.090	.090	.090	.090
DEC 84	.070	.050	NS	NS	NS	.090	.090	.100	.070	.080
JAN 85	.040	.040	.070	.080	.090	.070	.070	.070	.070	.080
FEB 85	.050	.040	.060	.050	.070	.030	.050	.080	.040	.060
5 MAR 85	.140	.150	.140	.150	.150	.130	.150	.100	.090	.090
16 APR 85	.070	.080	.070	.080	.070	.080	.080	.080	.080	.080
7 MAY 85	.080	.080	.090	.090	.090	.100	.080	.080	.080	.100
4 JUN 85	.060	.050	.050	.050	.060	.060	.070	.060	.060	.050
2 JUL 85	.070	.070	.070	.070	.070	.070	.080	.060	.070	.060
6 AUG 85	.060	.050	.060	.060	.050	.050	.060	.050	.050	.050
10 SEP 85	.050	.040	.030	.040	.040	.040	.030	.040	.040	.030

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: MANGANESE

WATER QUALITY STANDARDS
OCEAN : .1000 mg/l
LAGOONS: NO STANDARD

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	NR	NR	NR	NS	NS
2 NOV 83	NR	NR	NR	NS	NS
5 DEC 83	NR	NR	NR	NS	NS
4 JAN 84	NR	NR	NR	NS	NS
6 FEB 84	NR	NR	NR	.110	NS
5 MAR 84	NR	NR	NR	NS	NS
2 APR 84	NR	NR	NR	.040	NS
14 MAY 84	NR	NR	NR	NS	NS
13 JUN 84	NR	NR	NR	NS	NS
2 JUL 84	NR	NR	NR	.100	NS
6 AUG 84	NR	NR	NR	.070	NS
10 SEP 84	NR	NR	NR	.050	NS
OCT 84	NR	NR	NR	.100	NS
NOV 84	NR	NR	NR	NS	NS
DEC 84	NR	NR	NR	NS	NS
JAN 85	NR	NR	NR	.030	.070
FEB 85	NR	NR	NR	NS	NS
5 MAR 85	NR	NR	NR	.140	NS
16 APR 85	NR	NR	NR	.080	.080
7 MAY 85	NR	NR	NR	NS	NS
4 JUN 85	NR	NR	NR	.060	.070
2 JUL 85	NR	NR	NR	NS	NS
6 AUG 85	NR	NR	NR	.060	.050
10 SEP 85	NR	NR	NR	.040	.030


MANGANESE
CONCENTRATION (MG/L)
0.200
0.180
0.160
0.140
0.120
0.100
0.080
0.060
0.040
0.020
0.000
WQS - OCEAN
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: MERCURY

WATER QUALITY STANDARDS OCEAN : 1.0000 PPB
LAGOONS: 1.0000 PPB

OCEAN

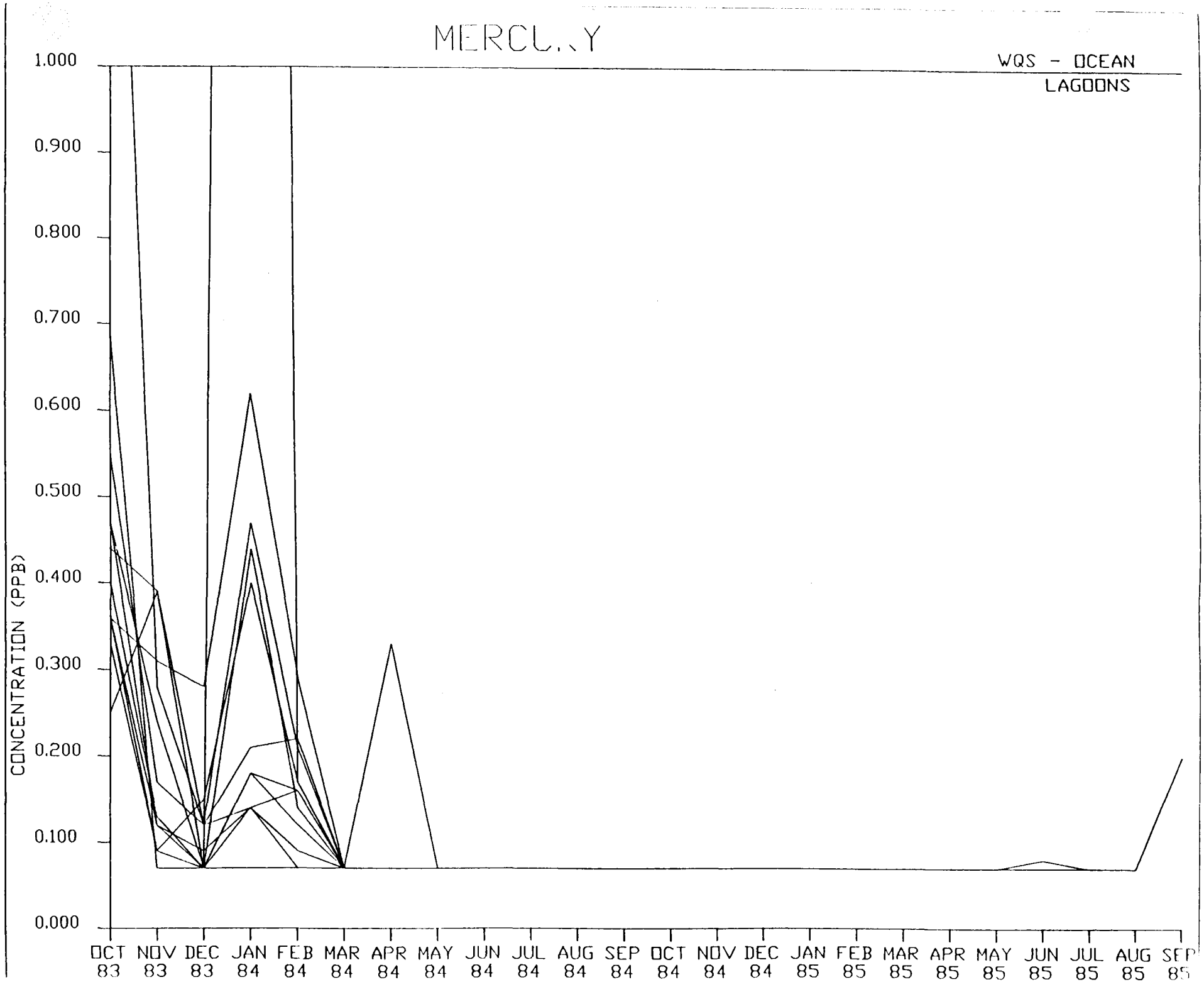
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.250	.400	.550	.330	.360	1.600	.470	.690	.360	.360
2 NOV 83	.390	.130	.170	.090	.310	.280	.240	< .070	.090	.090
5 DEC 83	< .070	< .070	.120	.150	.280	.120	< .070	< .070	< .070	< .070
4 JAN 84	5.900	.440	.470	.400	.620	.210	.140	.180	.180	.140
6 FEB 84	.170	.140	.210	.170	.290	.220	.160	.160	.120	.090
5 MAR 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	.070
2 APR 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
14 MAY 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
13 JUN 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
2 JUL 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
6 AUG 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
10 SEP 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
OCT 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
NOV 84	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
DEC 84	< .070	< .070	NS	NS	NS	< .070	< .070	< .070	< .070	< .070
JAN 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
FEB 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
5 MAR 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
16 APR 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
7 MAY 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
4 JUN 85	< .070	< .070	.080	< .070	< .070	< .070	< .070	< .070	< .070	< .070
2 JUL 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
6 AUG 85	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
10 SEP 85	< .200	< .200	< .200	< .200	< .200	< .200	< .200	< .200	< .200	< .200

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: MERCURY

WATER QUALITY STANDARDS OCEAN : 1.0000 PPB
LAGOONS: 1.0000 PPB

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	.360	.470	.440	NS	NS
2 NOV 83	.120	.120	.390	NS	NS
5 DEC 83	.090	< .070	.120	NS	NS
4 JAN 84	.140	< .070	.140	NS	NS
6 FEB 84	.090	< .070	< .070	.110	NS
5 MAR 84	.070	.070	.070	NS	NS
2 APR 84	< .070	.330	< .070	< .070	NS
14 MAY 84	< .070	< .070	NS	NS	NS
13 JUN 84	< .070	< .070	< .070	NS	NS
2 JUL 84	< .070	< .070	< .070	< .070	NS
6 AUG 84	< .070	< .070	< .070	< .070	NS
10 SEP 84	< .070	< .070	< .070	< .070	NS
OCT 84	< .070	< .070	< .070	< .070	NS
NOV 84	< .070	< .070	< .070	NS	NS
DEC 84	< .070	< .070	< .070	NS	NS
JAN 85	< .070	< .070	< .070	< .070	< .070
FEB 85	< .070	< .070	< .070	NS	NS
5 MAR 85	< .070	< .070	< .070	< .070	NS
16 APR 85	< .070	< .070	< .070	< .070	< .070
7 MAY 85	< .070	< .070	< .070	NS	NS
4 JUN 85	< .070	< .070	< .070	< .070	< .070
2 JUL 85	< .070	< .070	< .070	NS	NS
6 AUG 85	< .070	< .070	< .070	< .070	< .070
10 SEP 85	< .200	< .200	< .200	< .200	< .200


MERCURY
WQS - OCEAN
LAGOONS
CONCENTRATION (PPB)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: NITROGEN

WATER QUALITY STANDARDS OCEAN : 5.0000 mg/l
LAGOONS: 10.0000 mg/l

OCEAN

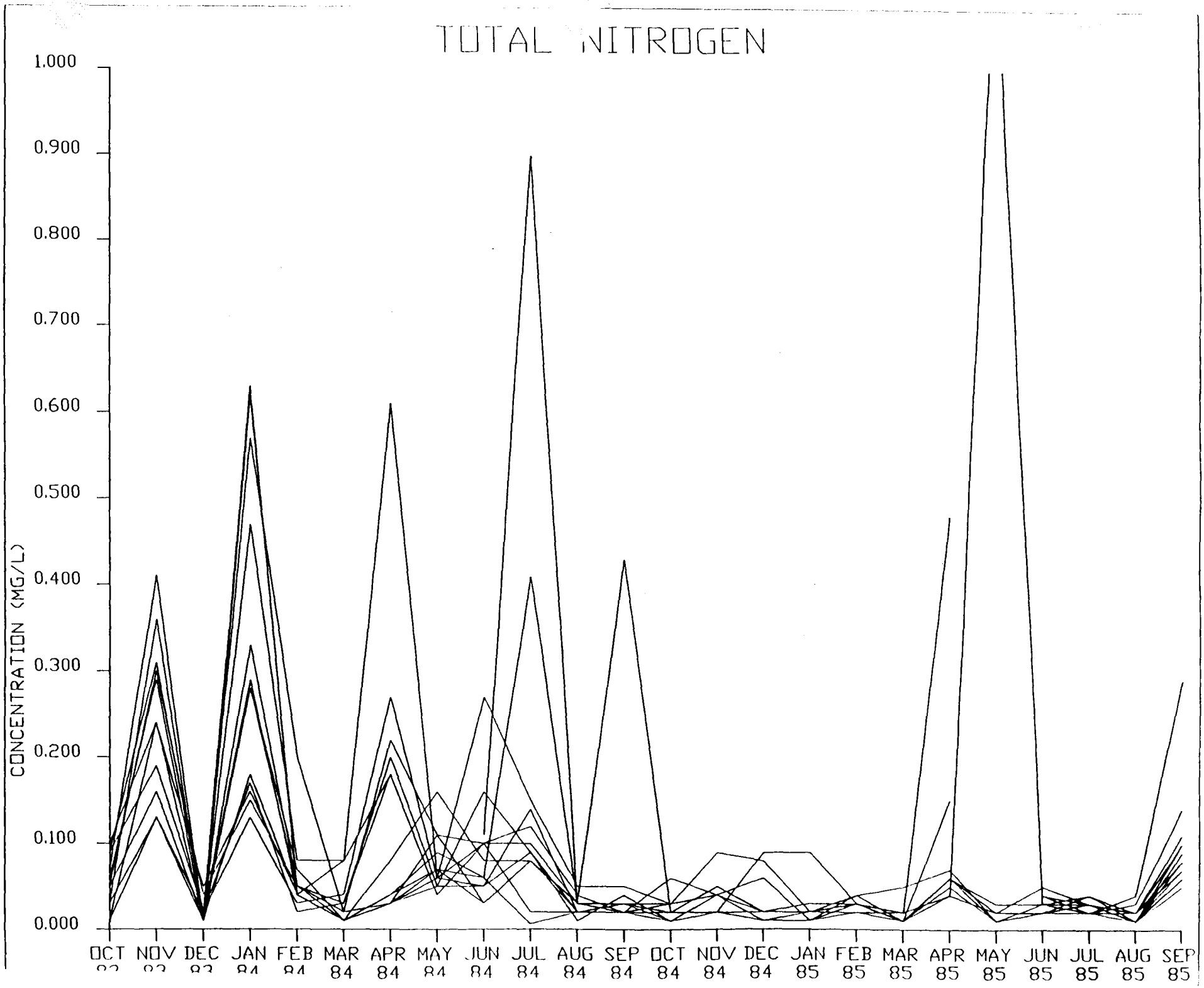
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.100	.090	.050	.090	.060	.070	.010	.050	.030	.010
2 NOV 83	.240	.310	.300	.190	.290	.410	.130	.160	.360	.130
5 DEC 83	.050	.020	.040	.020	.010	.010	.010	.010	.010	.020
4 JAN 84	.160	.130	.150	.170	.280	.180	.290	.280	.330	.630
6 FEB 84	.040	.030	.050	.020	.070	.040	.040	.050	.050	.040
5 MAR 84	.080	.040	.030	.030	.010	.010	.010	.010	.020	.010
2 APR 84	.610	.270	.200	.180	.080	.040	.040	.030	.030	.030
14 MAY 84	.060	.060	.050	.040	.160	.090	.070	.050	.070	.060
13 JUN 84	.270	.100	.160	.100	.080	.060	.060	.050	.030	.050
2 JUL 84	.150	.120	.090	.100	.080	.410	.006	.140	.080	.090
6 AUG 84	.050	.040	.020	.030	.030	.030	.020	.020	.030	.020
10 SEP 84	.050	.020	.020	.020	.030	.020	.020	.020	.030	.030
OCT 84	.030	.030	.030	.060	.030	.020	.010	.010	.010	.020
NOV 84	.090	.040	.040	.040	.040	.020	.040	.040	.020	.020
DEC 84	.080	.060	NS	NS	NS	.090	.010	.020	.010	.020
JAN 85	.020	.010	.010	.020	.010	.090	.020	.020	.010	.020
FEB 85	.040	.040	.030	NS	.020	.030	.030	.030	.030	.030
5 MAR 85	.050	.010	.010	.010	.010	.010	.010	.010	.010	.010
16 APR 85	.070	.040	.060	.060	.040	.060	.060	.060	.060	.050
7 MAY 85	.010	NS	NS	.030	.020	.020	.010	.010	.020	.010
4 JUN 85	.020	.040	.030	.030	.020	.050	.030	.020	.020	.020
2 JUL 85	.020	.020	.040	.020	.030	.030	.020	.030	.030	.030
6 AUG 85	.040	.030	.020	.020	.020	.010	.010	.010	.010	.010
10 SEP 85	.290	.140	.110	.100	.080	.080	.070	.050	.060	.060

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: NITROGEN

WATER QUALITY STANDARDS
OCEAN : 5.0000 mg/l
LAGOONS: 10.0000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.030	.040	.010	NS	NS
2 NOV 83	.130	NS	.240	NS	NS
5 DEC 83	.010	.010	.010	NS	NS
4 JAN 84	.620	.570	.470	NS	NS
6 FEB 84	.050	.200	.080	.080	NS
5 MAR 84	.010	.020	.080	NS	NS
2 APR 84	.030	.220	.180	.200	NS
14 MAY 84	.110	.110	NS	NS	NS
13 JUN 84	.030	.100	.110	NS	NS
2 JUL 84	.080	.020	.900	.090	NS
6 AUG 84	.020	.020	.030	.010	NS
10 SEP 84	.020	.030	.430	.040	NS
OCT 84	.020	.020	.020	.010	NS
NOV 84	.050	.050	.020	NS	NS
DEC 84	.020	.020	.010	NS	NS
JAN 85	.020	.030	.010	.020	.020
FEB 85	.020	.030	.030	NS	NS
5 MAR 85	.020	.020	.010	.010	NS
16 APR 85	.480	.040	.060	.150	.050
7 MAY 85	NS	1.160	.020	NS	NS
4 JUN 85	.040	.030	.020	.110	.020
2 JUL 85	.030	.030	.040	NS	NS
6 AUG 85	.020	.010	.010	.010	.010
10 SEP 85	.070	.090	.100	.100	.090


TOTAL NITROGEN
CONCENTRATION (MG/L)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
84 84 84 84 84 84 84 84 85 85 85 85 85 85 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: NITRATE + NITRITE

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: NO STANDARD

OCEAN

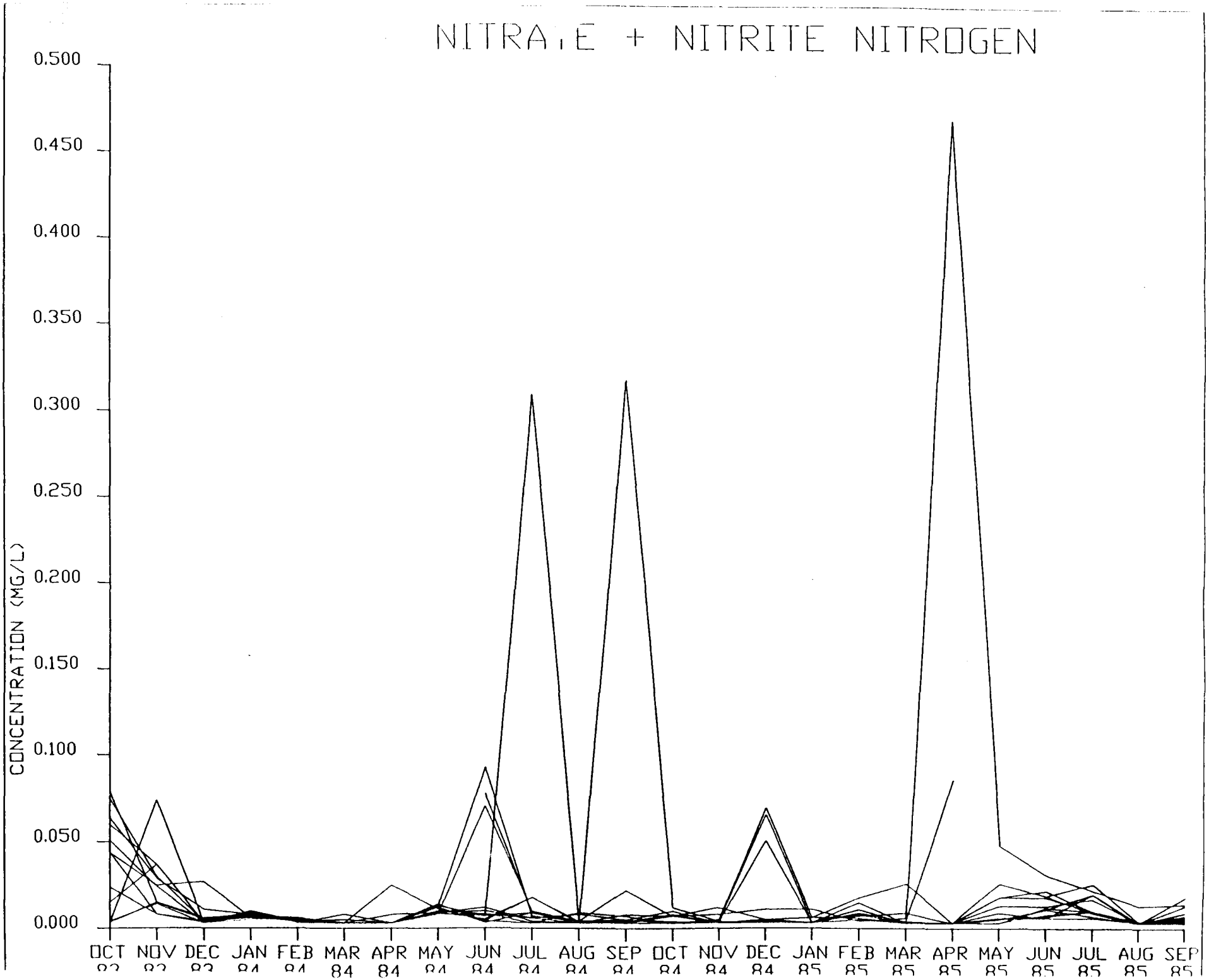
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.064	.075	.044	.079	.051	.060	.004	.044	.015	.003
2 NOV 83	.029	.030	.025	.015	.024	.037	.014	.008	.037	.015
5 DEC 83	.011	.004	.027	.006	.003	< .003	.003	< .003	.003	.005
4 JAN 84	.008	.006	.006	.008	.009	.007	.007	.005	.010	.008
6 FEB 84	.004	.004	.006	.004	.004	.005	.006	.005	.004	.003
5 MAR 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	.005	< .003
2 APR 84	.008	.025	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
14 MAY 84	.009	.011	.008	.013	.010	.008	.008	.009	.014	.009
13 JUN 84	.010	.004	.071	.007	.008	.007	.008	.012	.004	.005
2 JUL 84	.006	.018	.010	.009	.006	.310	.003	.004	< .003	.018
6 AUG 84	< .003	< .003	.004	< .003	.008	.004	< .003	< .003	.009	.004
10 SEP 84	< .003	< .003	.004	.004	.005	.003	< .003	.005	.007	.005
OCT 84	.003	.007	.008	.007	.010	< .003	< .003	.004	< .003	< .003
NOV 84	.005	< .003	.003	.004	< .003	.004	< .003	.003	.003	< .003
DEC 84	.070	.051	NS	NS	NS	.066	.003	.005	.004	.005
JAN 85	.006	< .003	< .003	.005	.003	.003	.003	< .003	.003	.006
FEB 85	.018	.011	.005	NS	.015	.005	.005	.011	.008	.006
5 MAR 85	.026	< .003	< .003	< .003	< .003	< .003	< .003	< .003	.003	.003
16 APR 85	< .003	< .003	< .003	< .003	.003	< .003	< .003	.003	.003	< .003
7 MAY 85	.003	NS	NS	.018	.013	.018	.006	.005	.009	.003
4 JUN 85	.012	.019	.011	.018	.013	.022	.006	.011	.006	.008
2 JUL 85	.010	.009	.020	.010	.017	.010	.006	.007	.020	.010
6 AUG 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	.003
10 SEP 85	.003	.009	.006	.009	.005	.018	.013	.004	.006	.009

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: NITRATE + NITRITE

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.024	.025	< .003	NS	NS
2 NOV 83	.008	NS	.074	NS	NS
5 DEC 83	.004	.004	< .003	NS	NS
4 JAN 84	.008	.008	.008	NS	NS
6 FEB 84	.003	< .003	.003	.003	NS
5 MAR 84	< .003	.008	.003	NS	NS
2 APR 84	< .003	< .003	< .003	.025	NS
14 MAY 84	.012	.013	NS	NS	NS
13 JUN 84	.003	.093	.078	NS	NS
2 JUL 84	.009	.007	.009	< .003	NS
6 AUG 84	.003	.004	.004	.003	NS
10 SEP 84	.008	.022	.318	< .003	NS
OCT 84	.007	.007	.012	< .003	NS
NOV 84	.008	.012	.004	NS	NS
DEC 84	.011	.005	.003	NS	NS
JAN 85	.011	.006	< .003	.005	.005
FEB 85	.004	.007	.009	NS	NS
5 MAR 85	.006	.009	.004	.004	NS
16 APR 85	.470	< .003	.003	.086	.003
7 MAY 85	.048	.026	.006	NS	NS
4 JUN 85	.031	.019	.007	< .003	< .003
2 JUL 85	.022	.026	.010	NS	NS
6 AUG 85	.013	.004	.004	< .003	< .003
10 SEP 85	.014	.006	.007	.006	.006


NITRATE + NITRITE NITROGEN
CONCENTRATION (MG/L)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP
83 83 83 84 84 84 84 84 84 84 84 84 84 84 84 85 85 85 85 85 85 85 85 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: OIL

WATER QUALITY STANDARDS OCEAN : 15.0000 mg/l
LAGOONS: 15.0000 mg/l

OCEAN

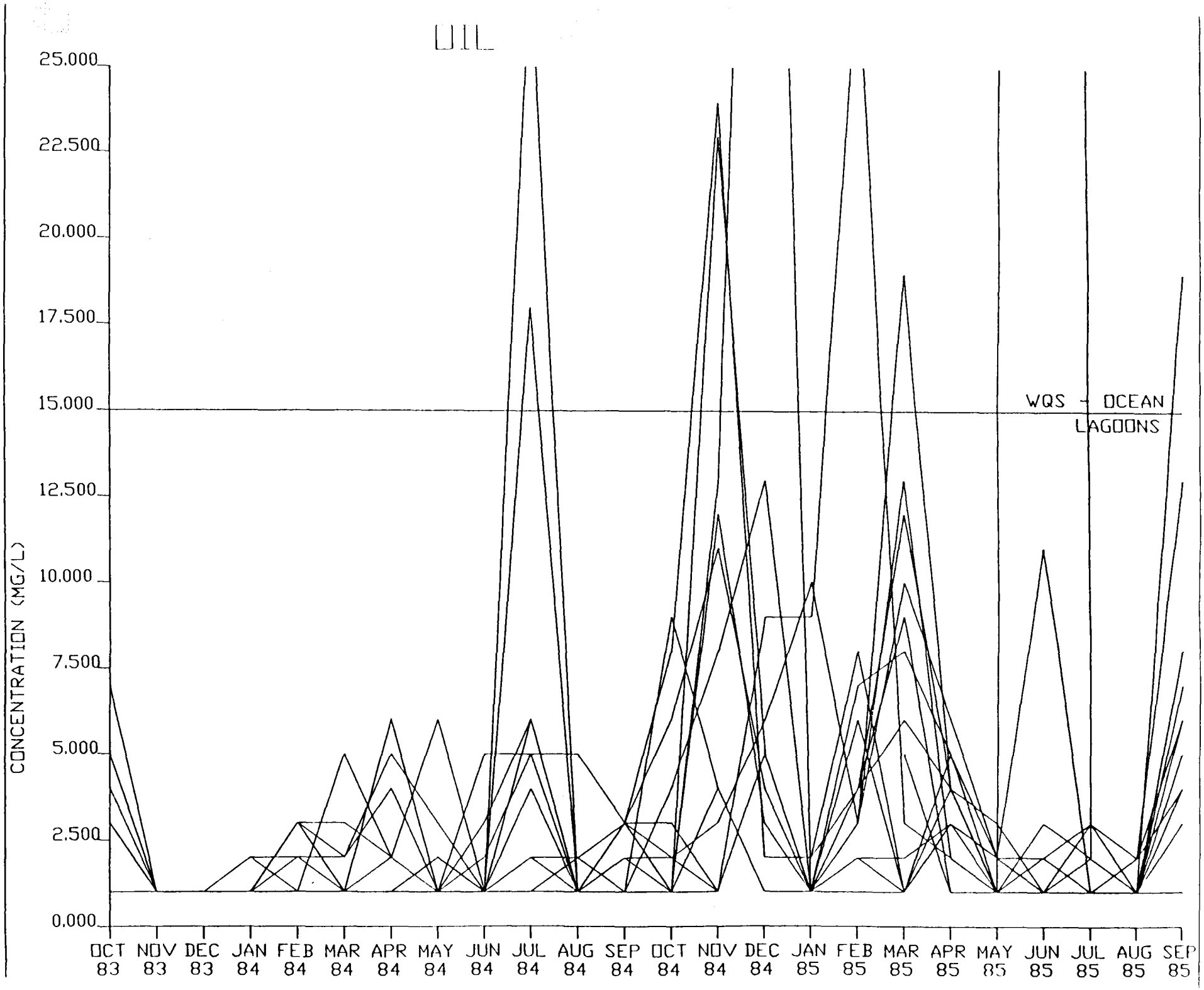
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	5.000	3.000	3.000	3.000	7.000	4.000	< 1.000	5.000	3.000	3.000
2 NOV 83	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
5 DEC 83	< 1.000	< 1.000	NS	NS	NS	< 1.000	< 1.000	NS	< 1.000	< 1.000
4 JAN 84	< 1.000	1.000	< 1.000	< 1.000	1.000	< 1.000	1.000	1.000	1.000	1.000
6 FEB 84	3.000	2.000	3.000	3.000	3.000	< 1.000	< 1.000	< 1.000	1.000	1.000
5 MAR 84	3.000	2.000	2.000	1.000	1.000	1.000	< 1.000	1.000	1.000	1.000
2 APR 84	2.000	4.000	5.000	6.000	2.000	1.000	< 1.000	1.000	1.000	< 1.000
14 MAY 84	6.000	1.000	3.000	1.000	1.000	2.000	1.000	1.000	2.000	1.000
13 JUN 84	< 1.000	3.000	1.000	5.000	2.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
2 JUL 84	2.000	6.000	6.000	5.000	5.000	18.000	28.000	4.000	2.000	< 1.000
6 AUG 84	2.000	< 1.000	< 1.000	< 1.000	5.000	< 1.000	< 1.000	< 1.000	< 1.000	2.000
10 SEP 84	3.000	2.000	1.000	1.000	3.000	3.000	2.000	3.000	< 1.000	1.000
OCT 84	< 1.000	2.000	< 1.000	< 1.000	2.000	< 1.000	< 1.000	6.000	9.000	4.000
NOV 84	< 1.000	3.000	4.000	< 1.000	< 1.000	23.000	12.000	11.000	4.000	8.000
DEC 84	9.000	6.000	NS	NS	NS	5.000	3.000	4.000	< 1.000	13.000
JAN 85	9.000	10.000	1.000	< 1.000	2.000	< 1.000	< 1.000	1.000	1.000	1.000
FEB 85	28.000	3.000	2.000	6.000	8.000	< 1.000	3.000	3.000	7.000	2.000
5 MAR 85	3.000	19.000	< 1.000	1.000	< 1.000	< 1.000	13.000	10.000	8.000	2.000
16 APR 85	2.000	4.000	4.000	5.000	3.000	3.000	2.000	6.000	5.000	3.000
7 MAY 85	< 1.000	3.000	< 1.000	1.000	2.000	2.000	1.000	2.000	2.000	< 1.000
4 JUN 85	1.000	< 1.000	< 1.000	< 1.000	2.000	11.000	2.000	1.000	1.000	1.000
2 JUL 85	2.000	1.000	3.000	1.000	1.000	< 1.000	< 1.000	< 1.000	< 1.000	< 1.000
6 AUG 85	1.000	1.000	2.000	2.000	1.000	1.000	1.000	2.000	1.000	1.000
10 SEP 85	8.000	6.000	13.000	6.000	8.000	19.000	4.000	4.000	7.000	5.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: OIL

WATER QUALITY STANDARDS OCEAN : 15.0000 mg/l
LAGOONS: 15.0000 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	5.000	3.000	3.000	NS	NS
2 NOV 83	< 1.000	< 1.000	< 1.000	NS	NS
5 DEC 83	1.000	< 1.000	NS	NS	NS
4 JAN 84	2.000	1.000	2.000	NS	NS
6 FEB 84	2.000	1.000	< 1.000	< 1.000	NS
5 MAR 84	1.000	1.000	5.000	NS	NS
2 APR 84	< 1.000	< 1.000	2.000	2.000	NS
14 MAY 84	< 1.000	2.000	NS	NS	NS
13 JUN 84	1.000	< 1.000	< 1.000	NS	NS
2 JUL 84	< 1.000	< 1.000	< 1.000	< 1.000	NS
6 AUG 84	< 1.000	< 1.000	1.000	2.000	NS
10 SEP 84	3.000	3.000	3.000	3.000	NS
OCT 84	8.000	3.000	< 1.000	8.000	NS
NOV 84	24.000	< 1.000	13.000	NS	NS
DEC 84	2.000	5.000	51.000	NS	NS
JAN 85	2.000	1.000	< 1.000	4.000	7.000
FEB 85	4.000	4.000	4.000	NS	NS
5 MAR 85	6.000	12.000	9.000	5.000	NS
16 APR 85	4.000	4.000	< 1.000	< 1.000	< 1.000
7 MAY 85	< 1.000	< 1.000	1.000	NS	NS
4 JUN 85	*369.000	3.000	2.000	1.000	3.000
2 JUL 85	2.000	2.000	3.000	NS	NS
6 AUG 85	1.000	< 1.000	< 1.000	< 1.000	< 1.000
10 SEP 85	4.000	8.000	< 1.000	1.000	3.000


OIL
CONCENTRATION (MG/L)
25.000
22.500
20.000
17.500
15.000
12.500
10.000
7.500
5.000
2.500
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: pH

WATER QUALITY STANDARDS OCEAN : 7.3-8.5 S.U.
LAGOONS: 7.3-8.5 S.U.

OCEAN

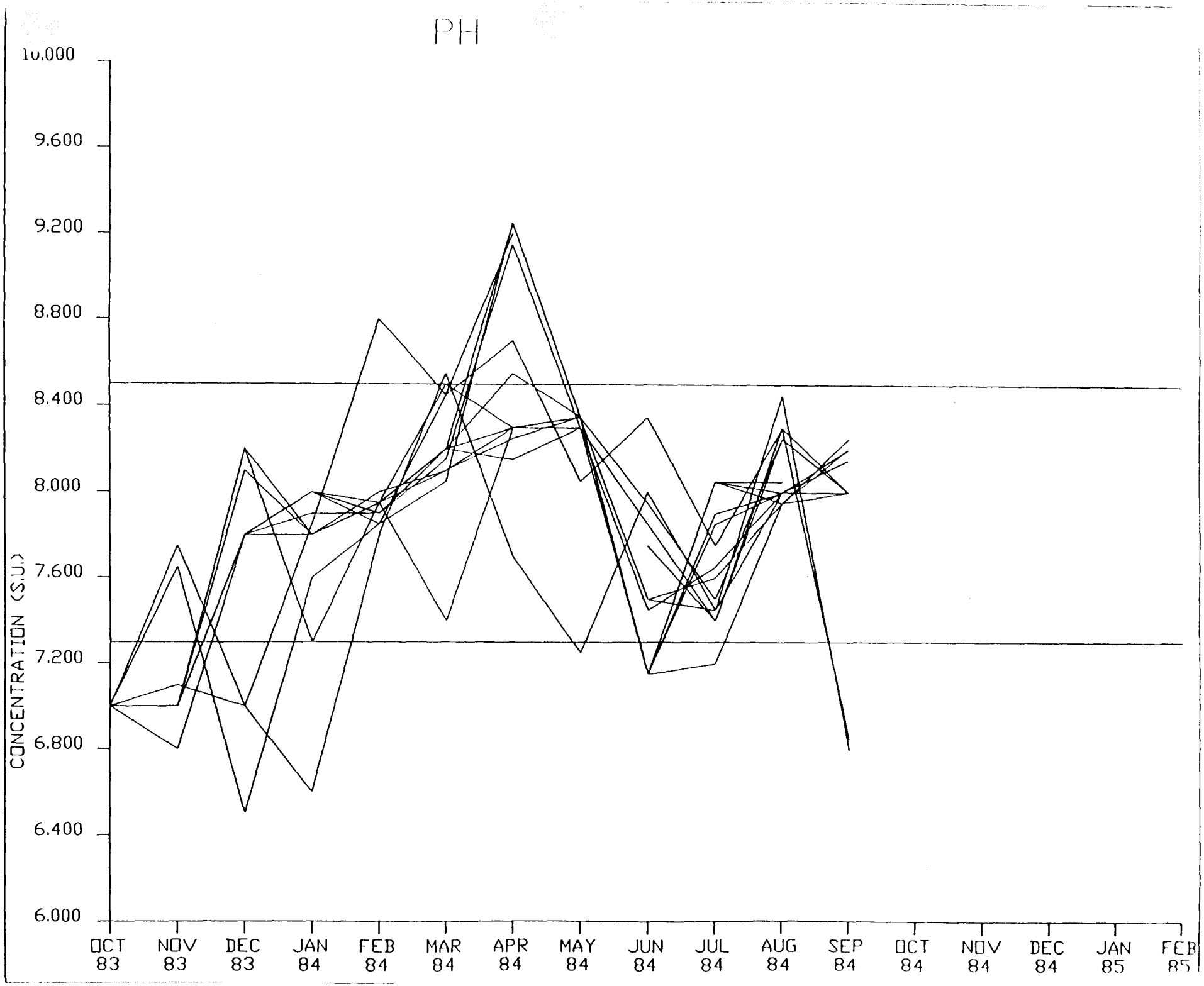
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000
2 NOV 83	6.800	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000	7.000
5 DEC 83	7.800	7.800	7.800	7.800	7.800	8.200	8.200	8.100	7.800	7.800
4 JAN 84	8.000	8.000	8.000	8.000	7.900	7.300	7.800	7.800	7.800	7.800
6 FEB 84	7.950	7.850	7.900	7.900	7.900	7.950	7.950	7.950	8.000	7.950
5 MAR 84	8.200	8.050	8.200	8.150	8.200	8.100	7.400	8.500	8.100	8.200
2 APR 84	8.550	9.250	8.150	9.150	9.250	8.300	8.300	8.300	8.250	8.300
14 MAY 84	8.350	8.350	8.300	8.300	8.350	8.300	8.350	8.300	8.350	8.350
13 JUN 84	7.150	7.150	7.150	7.150	7.150	7.850	7.950	7.450	7.500	7.500
2 JUL 84	7.900	8.050	7.850	7.200	8.050	7.400	7.500	7.650	7.450	7.600
6 AUG 84	8.000	8.000	8.000	7.950	7.950	8.250	8.250	8.000	8.000	7.950
10 SEP 84	8.150	8.150	8.200	8.200	8.250	8.000	8.000	8.000	8.000	8.000
OCT 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: pH

WATER QUALITY STANDARDS
OCEAN : 7.3-8.5 S.U.
LAGOONS: 7.3-8.5 S.U.

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	7.000	7.000	7.000	NS	NS
2 NOV 83	7.650	7.750	7.100	NS	NS
5 DEC 83	6.500	7.000	7.000	NS	NS
4 JAN 84	7.600	6.600	7.850	NS	NS
6 FEB 84	7.850	7.600	8.800	8.200	NS
5 MAR 84	8.450	8.550	8.450	NS	NS
2 APR 84	8.700	7.700	9.200	8.000	NS
14 MAY 84	8.050	7.250	NS	NS	NS
13 JUN 84	8.350	8.000	7.750	NS	NS
2 JUL 84	7.750	7.450	7.400	8.050	NS
6 AUG 84	9.300	8.450	8.300	8.050	NS
10 SEP 84	8.000	6.800	6.850	NS	NS
OCT 84	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS


PH
10.000
9.600
9.200
8.800
8.400
8.000
7.600
7.200
6.800
6.400
6.000
CONCENTRATION (S.U.)
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: PHENOLS

WATER QUALITY STANDARDS OCEAN : 10.0000 PPB
LAGOONS: 1.0000 PPB

OCEAN

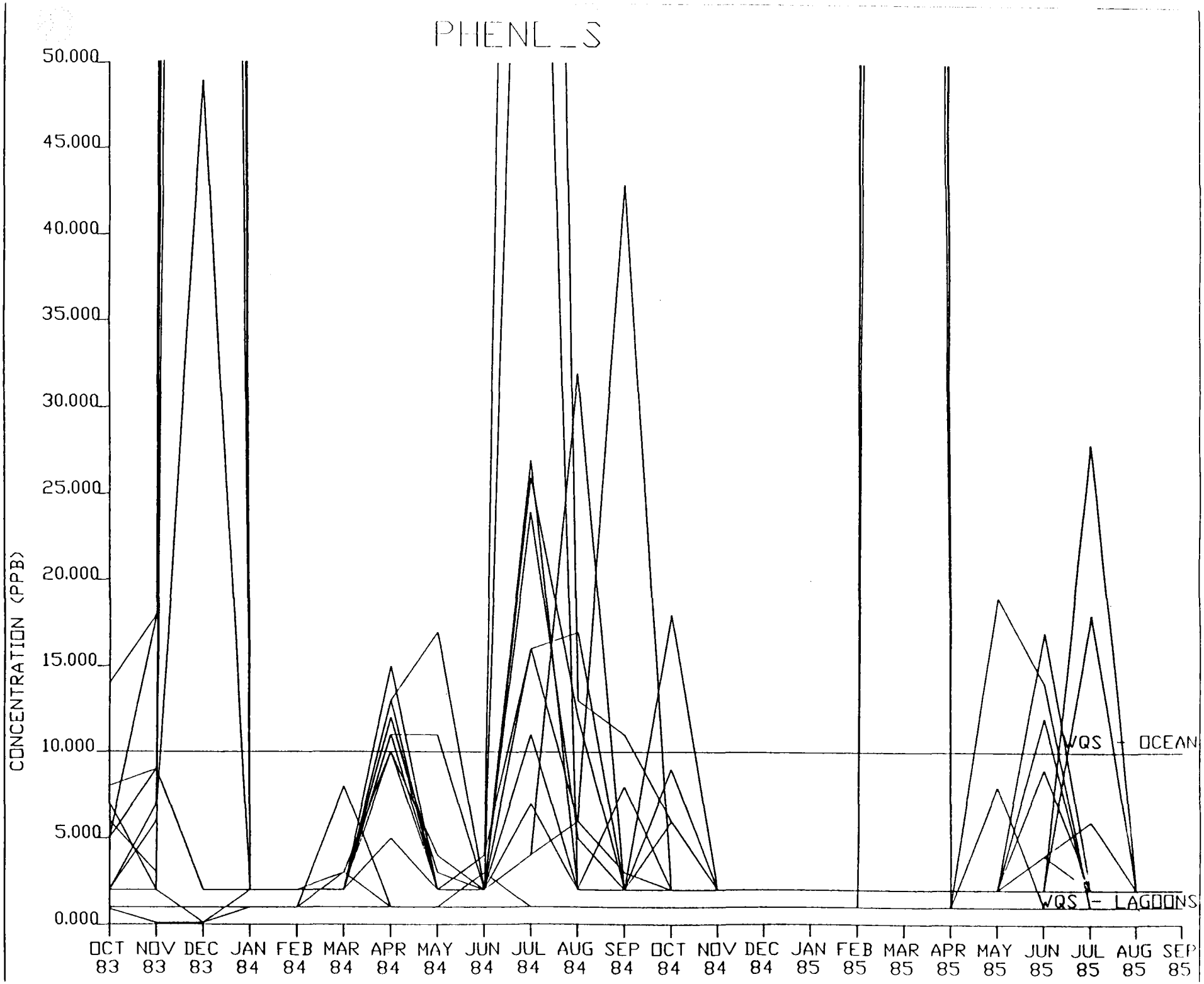
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	7.000	8.000	5.000	5.000	2.000	2.000	6.000	2.000	5.000	14.000
2 NOV 83	< 2.000	9.000	9.000	9.000	< 2.000	6.000	3.000	7.000	18.000	18.000
5 DEC 83	.110	< 2.000	< 2.000	< 2.000	490.000	49.000	290.000	720.000	670.000	NS
4 JAN 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
6 FEB 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
5 MAR 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	2.000	2.000	< 2.000	3.000
2 APR 84	12.000	13.000	15.000	13.000	11.000	5.000	11.000	12.000	10.000	10.000
14 MAY 84	< 2.000	17.000	< 2.000	< 2.000	11.000	< 2.000	2.000	3.000	< 2.000	4.000
13 JUN 84	4.000	< 2.000	< 2.000	< 2.000	< 2.000	4.000	2.000	2.000	2.000	< 2.000
2 JUL 84	161.000	27.000	90.000	26.000	16.000	16.000	4.000	24.000	11.000	7.000
6 AUG 84	13.000	< 2.000	< 2.000	12.000	6.000	17.000	6.000	5.000	< 2.000	< 2.000
10 SEP 84	11.000	2.000	< 2.000	< 2.000	43.000	< 2.000	3.000	< 2.000	< 2.000	8.000
OCT 84	6.000	< 2.000	< 2.000	18.000	< 2.000	9.000	< 2.000	6.000	< 2.000	< 2.000
NOV 84	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
DEC 84	< 2.000	< 2.000	NS	NS	NS	NS	< 2.000	< 2.000	< 2.000	< 2.000
JAN 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
FEB 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
5 MAR 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
16 APR 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
7 MAY 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
4 JUN 85	< 2.000	< 2.000	17.000	9.000	4.000	4.000	< 2.000	< 2.000	< 2.000	< 2.000
2 JUL 85	28.000	18.000	< 2.000	< 2.000	< 2.000	6.000	< 2.000	< 2.000	< 2.000	< 2.000
6 AUG 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000
10 SEP 85	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000	< 2.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: PHENOLS

WATER QUALITY STANDARDS — OCEAN : 10.0000 PPB; LAGOONS: 1.0000 PPB

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	< .900	< .900	< .900	NS	NS
2 NOV 83	< .100	< .100	< .100	NS	NS
5 DEC 83	< .100	< .100	< .100	NS	NS
4 JAN 84	< 1.000	< 1.000	< 1.000	NS	NS
6 FEB 84	< 1.000	< 1.000	< 1.000	< 2.000	NS
5 MAR 84	3.000	8.000	< 1.000	NS	NS
2 APR 84	< 1.000	< 1.000	< 1.000	15.000	NS
14 MAY 84	< 1.000	< 1.000	NS	NS	NS
13 JUN 84	< 1.000	3.000	1.000	NS	NS
2 JUL 84	< 1.000	< 1.000	1.000	4.000	NS
6 AUG 84	< 1.000	< 1.000	< 1.000	32.000	NS
10 SEP 84	< 1.000	< 1.000	< 1.000	< 2.000	NS
OCT 84	< 1.000	< 1.000	< 1.000	< 2.000	NS
NOV 84	< 1.000	< 1.000	< 1.000	NS	NS
DEC 84	< 1.000	< 1.000	< 1.000	NS	NS
JAN 85	< 1.000	< 1.000	< 1.000	< 2.000	< 2.000
FEB 85	< 1.000	< 1.000	< 1.000	NS	NS
5 MAR 85	400.000	~~xxxxxx~~ 1359.	844.000	< 2.000	NS
16 APR 85	1.000	< 1.000	< 2.000	< 2.000	< 2.000
7 MAY 85	8.000	19.000	2.000	NS	NS
4 JUN 85	< 1.000	14.000	12.000	9.000	2.000
2 JUL 85	< 1.000	< 1.000	< 1.000	NS	NS
6 AUG 85	< 1.000	< 1.000	< 1.000	< 2.000	< 2.000
10 SEP 85	< 1.000	< 1.000	< 1.000	< 2.000	< 2.000


PHENL_S
CONCENTRATION (PPB)
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
WQS - OCEAN
WQS - LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SALINITY

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

OCEAN

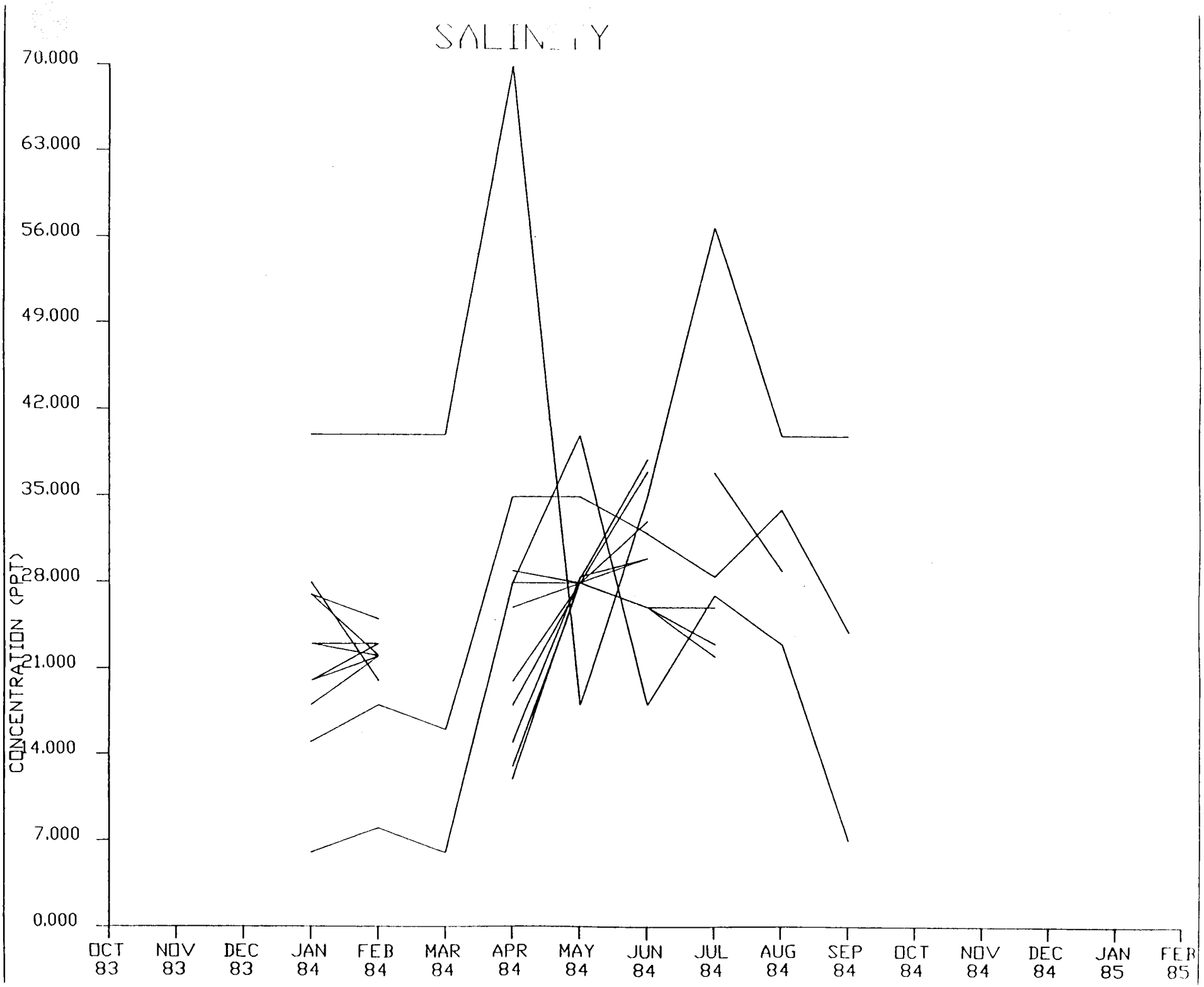
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 NOV 83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
5 DEC 83	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
4 JAN 84	NS	NS	28.000	27.000	23.000	27.000	23.000	20.000	20.000	18.000
6 FEB 84	29.000	20.000	20.000	22.000	22.000	25.000	23.000	23.000	22.000	22.000
5 MAR 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
2 APR 84	28.000	26.000	29.000	29.000	29.000	* 12.000	* 13.000	20.000	* 18.000	* 15.000
14 MAY 84	28.000	28.000	28.000	28.000	28.000	28.400	28.000	28.000	28.000	28.500
13 JUN 84	26.000	26.000	26.000	26.000	26.000	38.000	33.000	30.000	37.000	30.000
2 JUL 84	26.000	23.000	22.000	NS	NS	NS	NS	NS	NS	NS
6 AUG 84	NS	NS	NS	NS	NS	30.000	33.000	32.000	33.000	36.000
10 SEP 84	27.000	34.000	34.000	29.000	31.000	NS	NS	NS	NS	NS
OCT 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SALINITY

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	NS	NS	NS	NS	NS
2 NOV 83	NS	NS	NS	NS	NS
5 DEC 83	NS	NS	NS	NS	NS
4 JAN 84	15.000	> 40.000	6.000	NS	NS
6 FEB 84	18.000	> 40.000	8.000	16.000	NS
5 MAR 84	16.000	> 40.000	6.000	NS	NS
2 APR 84	35.000	70.000	28.000	> 70.000	NS
14 MAY 84	35.000	18.000	40.000	NS	NS
13 JUN 84	32.000	35.000	18.000	NS	NS
2 JUL 84	28.500	57.000	27.000	37.000	NS
6 AUG 84	34.000	> 40.000	23.000	29.000	NS
10 SEP 84	24.000	> 40.000	7.000	NS	NS
OCT 84	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS


SALINITY
70.000
63.000
56.000
49.000
42.000
35.000
28.000
21.000
14.000
7.000
0.000
CONCENTRATION (PPT)
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SELENIUM

WATER QUALITY STANDARDS OCEAN : .0100 mg/l
LAGOONS: .0100 mg/l

OCEAN

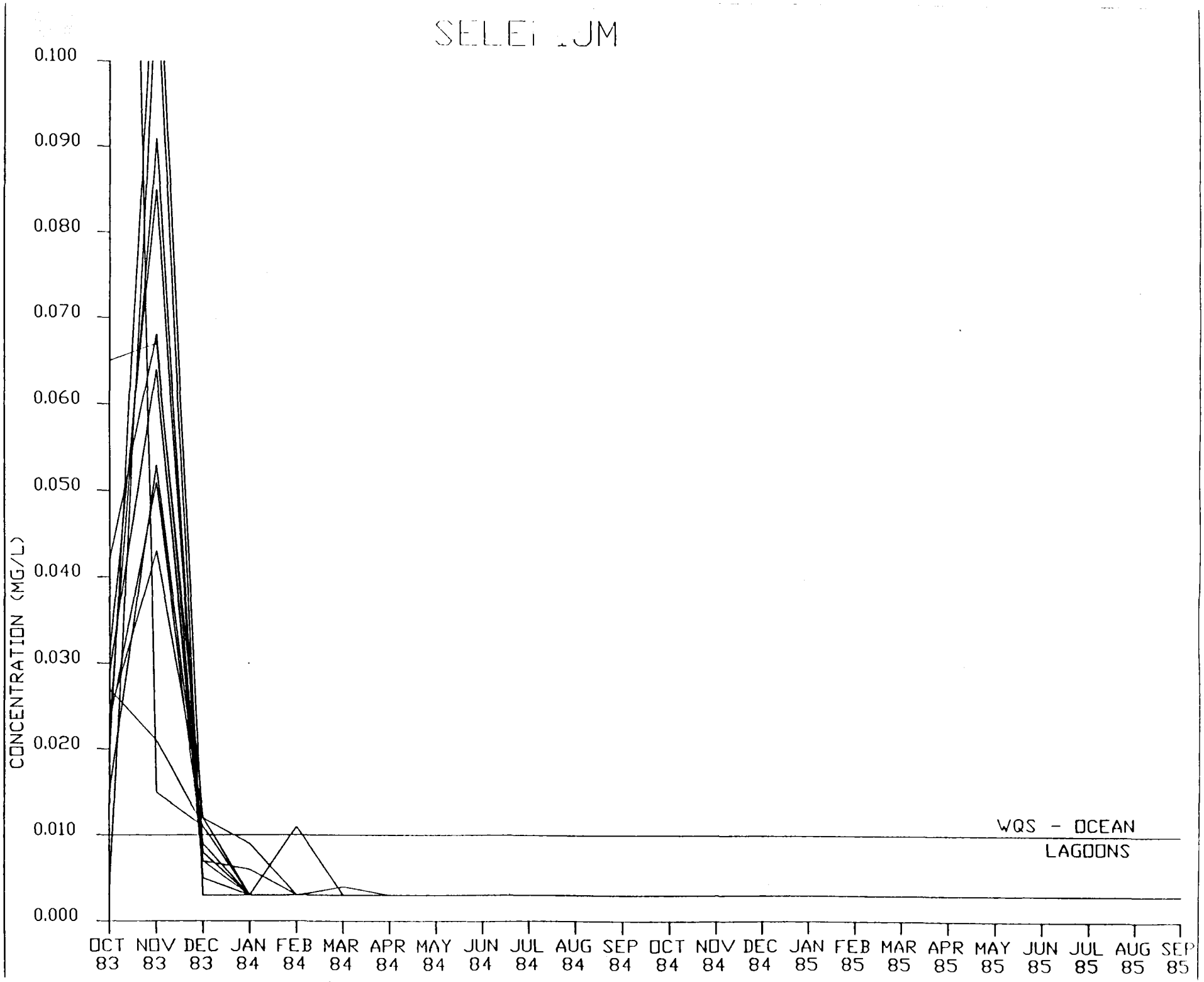
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.027	.019	.065	.024	.015	.023	.029	.042	.023	.031
2 NOV 83	.021	.117	.067	.043	.053	.091	.064	.068	.051	.085
5 DEC 83	.011	.008	.012	.012	.009	.005	.007	.008	.007	.005
4 JAN 84	< .003	< .003	< .003	.009	.003	< .003	.006	< .003	< .003	< .003
6 FEB 84	< .003	< .003	< .003	< .003	.011	< .003	< .003	< .003	< .003	< .003
5 MAR 84	.004	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
2 APR 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
14 MAY 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
13 JUN 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
2 JUL 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
6 AUG 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
10 SEP 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
OCT 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
NOV 84	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
DEC 84	< .003	< .003	NS	NS	NS	< .003	< .003	< .003	< .003	< .003
JAN 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
FEB 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
5 MAR 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
16 APR 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
7 MAY 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
4 JUN 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
2 JUL 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
6 AUG 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003
10 SEP 85	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003	< .003

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SELENIUM

WATER QUALITY STANDARDS OCEAN : .0100 mg/l
LAGOONS: .0100 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	.029	.262	< .003	NS	NS
2 NOV 83	.064	.015	.109	NS	NS
5 DEC 83	.005	.011	< .003	NS	NS
4 JAN 84	< .003	< .003	.003	NS	NS
6 FEB 84	< .003	< .003	< .003	< .003	NS
5 MAR 84	< .003	< .003	< .003	NS	NS
2 APR 84	< .003	< .003	< .003	< .003	NS
14 MAY 84	< .003	< .003	NS	NS	NS
13 JUN 84	< .003	< .003	< .003	NS	NS
2 JUL 84	< .003	< .003	< .003	< .003	NS
6 AUG 84	< .003	< .003	< .003	< .003	NS
10 SEP 84	< .003	< .003	< .003	< .003	NS
OCT 84	< .003	< .003	< .003	< .003	NS
NOV 84	< .003	< .003	< .003	NS	NS
DEC 84	< .003	< .003	< .003	NS	NS
JAN 85	< .003	< .003	< .003	< .003	< .003
FEB 85	< .003	< .003	< .003	NS	NS
5 MAR 85	< .003	< .003	< .003	< .003	NS
16 APR 85	< .003	< .003	< .003	< .003	< .003
7 MAY 85	< .003	< .003	< .003	NS	NS
4 JUN 85	< .003	< .003	< .003	< .003	< .003
2 JUL 85	< .003	< .003	< .003	NS	NS
6 AUG 85	< .003	< .003	< .003	< .003	< .003
10 SEP 85	< .003	< .003	< .003	< .003	< .003


SELEN IUM
CONCENTRATION (MG/L)
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SILVER

WATER QUALITY STANDARDS OCEAN : .0020 mg/l
LAGOONS: .0020 mg/l

OCEAN

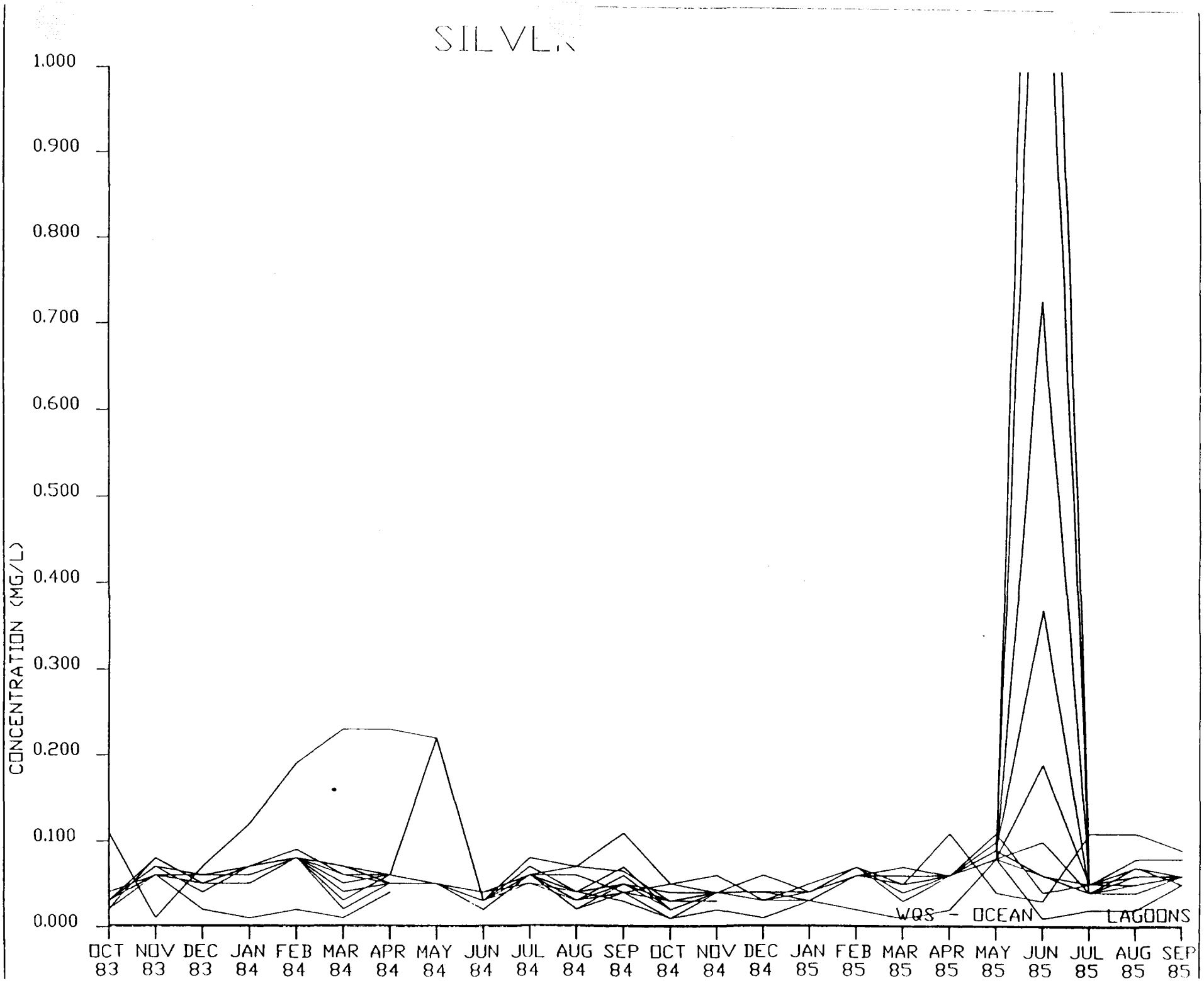
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.020	.030	.030	.030	.030	.030	.030	.030	.030	.040
2 NOV 83	.080	.080	.070	.060	.060	.060	.070	.060	.060	.060
5 DEC 83	.050	.050	.040	.050	.060	.050	.060	.050	.050	.050
4 JAN 84	.070	.070	.070	.050	.070	.070	.060	.070	.070	.070
6 FEB 84	.080	.080	.080	.080	.080	.080	.080	.080	.080	.080
5 MAR 84	.070	.070	.060	.050	.020	.070	.070	.030	.040	.040
2 APR 84	.050	.060	.050	.060	.050	.050	.050	.060	.050	.050
14 MAY 84	.050	.050	.050	.050	.050	.050	.050	.050	.050	.050
13 JUN 84	.040	.040	.030	.040	.030	.020	.020	.020	.030	.030
2 JUL 84	.060	.060	.050	.050	.060	.060	.060	.060	.060	.060
6 AUG 84	.060	.040	.040	.030	.030	.030	.040	.020	.030	.040
10 SEP 84	.040	.050	.050	.040	.040	.050	.050	.050	.060	.070
OCT 84	.030	.030	.030	.030	.050	.040	.030	.020	.020	.020
NOV 84	.040	.040	.030	.040	.040	.040	.040	.040	.040	.040
DEC 84	.040	.030	NS	NS	NS	.040	.040	.040	.060	.040
JAN 85	.030	.030	< .040	.040	.040	.040	.040	.040	.040	.040
FEB 85	.060	.060	.060	.060	.060	.060	.060	.070	.060	.070
5 MAR 85	.060	.060	.060	.060	.070	.070	.050	.050	.050	.040
16 APR 85	.060	.060	.060	.060	.060	.060	.060	.060	.060	.060
7 MAY 85	.100	.090	.080	.090	.080	.080	.090	.090	.080	.090
4 JUN 85	1.770	1.360	.730	.370	.190	.100	.060	.060	.060	.060
2 JUL 85	.050	.050	.050	.040	.050	.040	.040	.040	.050	.040
6 AUG 85	.080	.070	.060	.070	.060	.060	.060	.050	.050	.040
10 SEP 85	.080	.050	.060	.060	.060	.060	.060	.060	.060	.060

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SILVER

WATER QUALITY STANDARDS OCEAN : .0020 mg/l
LAGOONS: .0020 mg/l

DATE	LAGOONS RW-11	LAGOONS RW-12	LAGOONS RW-13	STRAYS RW-14	STRAYS RW-15
5 OCT 83	.030	.110	.020	NS	NS
2 NOV 83	.060	.010	.060	NS	NS
5 DEC 83	.050	.070	.020	NS	NS
4 JAN 84	.070	.120	.010	NS	NS
6 FEB 84	.090	.190	.020	.080	NS
5 MAR 84	.060	.230	< .010	NS	NS
2 APR 84	.060	.230	.040	.050	NS
14 MAY 84	.220	.220	NS	NS	NS
13 JUN 84	.030	.030	.020	NS	NS
2 JUL 84	.070	.080	.060	.060	NS
6 AUG 84	.040	.070	.020	.070	NS
10 SEP 84	.030	.110	.040	.065	NS
OCT 84	.010	.050	.010	.030	NS
NOV 84	.040	.060	.020	NS	NS
DEC 84	.030	.030	.010	NS	NS
JAN 85	.050	.040	.030	.050	.060
FEB 85	.070	.060	.020	NS	NS
5 MAR 85	.030	.050	.010	.060	NS
16 APR 85	.060	.110	.020	.060	.060
7 MAY 85	.110	.040	.080	NS	NS
4 JUN 85	.040	.030	< .010	.130	.050
2 JUL 85	.050	.110	.020	NS	NS
6 AUG 85	.050	.110	.020	.040	.040
10 SEP 85	.060	.090	.050	.060	.060


SILVER
CONCENTRATION (MG/L)
1.000
0.900
0.800
0.700
0.600
0.500
0.400
0.300
0.200
0.100
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SULFATES

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: 250.0000 mg/l

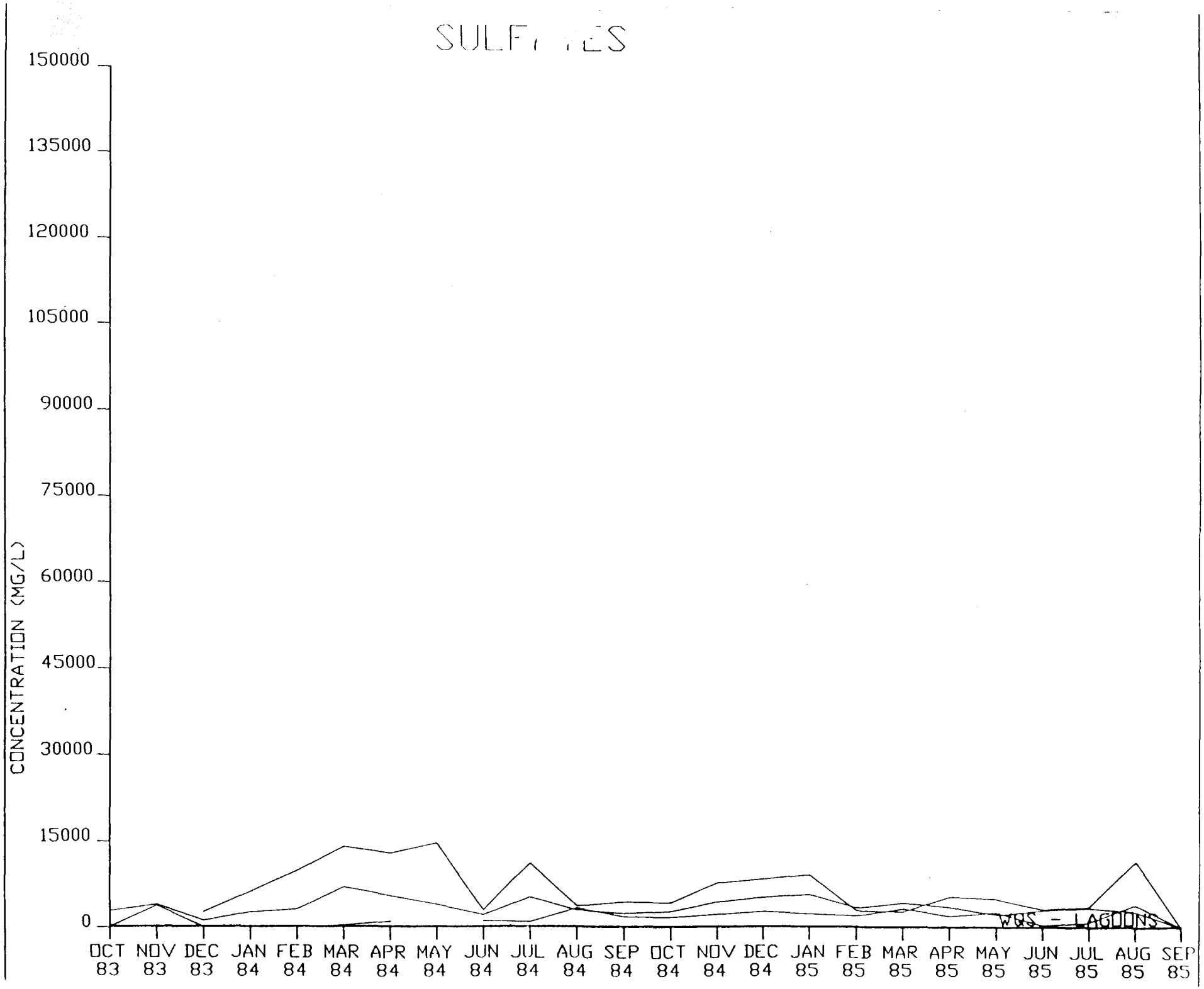
DATE	OCEAN									
	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 NOV 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 DEC 83	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4 JAN 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 FEB 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 MAR 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 APR 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
14 MAY 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
13 JUN 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 JUL 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 AUG 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
10 SEP 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
OCT 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
NOV 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DEC 84	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
JAN 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
FEB 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
5 MAR 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
16 APR 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
7 MAY 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
4 JUN 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
2 JUL 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
6 AUG 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
10 SEP 85	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SULFATES

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: 250.0000 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	2900.	6600.	119.	NR	NR
2 NOV 83	4000.	NS	3800.	NR	NR
5 DEC 83	1181.	2689.	38.	NR	NR
4 JAN 84	2689.	6210.	140.	NR	NR
6 FEB 84	3136.	9867.	22.	NR	NR
5 MAR 84	7060.	14100.	400.	NR	NR
2 APR 84	5500.	13000.	1030.	NR	NR
14 MAY 84	4000.	14750.	NS	NR	NR
13 JUN 84	2200.	3000.	1100.	NR	NR
2 JUL 84	5300.	11300.	965.	NR	NR
6 AUG 84	3000.	3750.	3400.	NR	NR
10 SEP 84	2500.	4500.	1900.	NR	NR
OCT 84	2800.	4300.	1800.	NR	NR
NOV 84	4500.	7800.	2300.	NR	NR
DEC 84	5300.	8500.	2800.	NR	NR
JAN 85	5800.	9300.	2400.	NR	NR
FEB 85	3500.	3000.	2100.	NR	NR
5 MAR 85	4400.	2800.	3400.	NR	NR
16 APR 85	3700.	5500.	2100.	NR	NR
7 MAY 85	2300.	5100.	2700.	NR	NR
4 JUN 85	3100.	3300.	505.	NR	NR
2 JUL 85	3500.	3700.	1000.	NR	NR
6 AUG 85	2900.	11800.	4100.	NR	NR
10 SEP 85	38.	43.	18.	NR	NR


SULFATES
CONCENTRATION (MG/L)
150000
135000
120000
105000
90000
75000
60000
45000
30000
15000
0
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85
WQS - LAGOONS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SULFIDES

WATER QUALITY STANDARDS OCEAN : .0020 mg/l
LAGOONS: .0020 mg/l

OCEAN

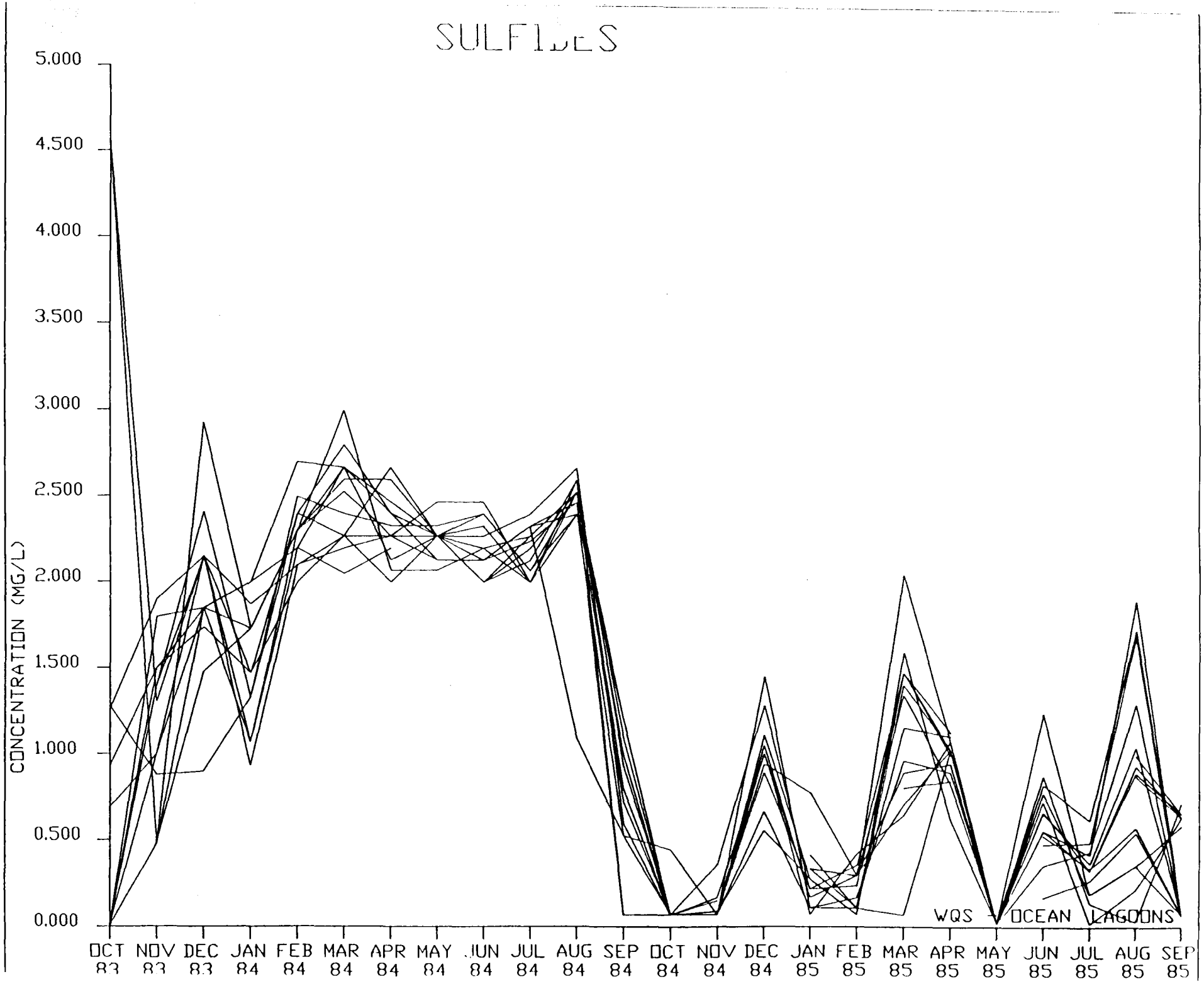
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	4.570	.690	1.280	< .007	1.260	< .007	< .007	.930	< .007	< .007
2 NOV 83	.480	1.000	.880	1.800	1.900	1.400	1.400	1.500	1.500	1.000
5 DEC 83	2.930	1.850	.900	1.850	2.150	2.150	2.410	1.740	1.850	2.150
4 JAN 84	1.730	2.000	1.330	1.730	1.070	1.870	1.330	1.470	1.070	1.470
6 FEB 84	2.300	2.700	2.400	2.300	2.200	2.100	2.500	2.000	2.300	2.400
5 MAR 84	2.530	2.670	2.800	3.000	2.670	2.200	2.400	2.270	2.670	2.270
2 APR 84	2.270	2.470	2.400	2.070	2.400	2.270	2.330	2.670	2.130	2.000
14 MAY 84	2.470	2.270	2.130	2.070	2.270	2.270	2.330	2.270	2.270	2.270
13 JUN 84	2.470	2.400	2.130	2.200	2.130	2.000	2.400	2.330	2.000	2.270
2 JUL 84	2.000	2.070	2.330	2.270	2.240	2.130	2.070	2.000	2.200	2.400
6 AUG 84	2.400	2.400	2.400	2.530	2.470	2.600	2.530	2.530	2.530	2.670
10 SEP 84	1.200	.530	1.200	1.000	.730	.930	1.200	1.100	.800	.600
OCT 84	< .070	.450	< .070	< .070	< .070	< .070	< .070	< .070	< .070	< .070
NOV 84	< .070	< .070	< .070	.150	.090	< .070	.360	< .070	< .070	.170
DEC 84	.670	.900	NS	NS	NS	1.060	1.290	1.120	.950	1.010
JAN 85	.110	.220	.420	.340	.340	.170	.220	.280	.780	< .070
FEB 85	.170	.240	.110	.110	.300	.300	.360	< .070	.300	.430
5 MAR 85	.970	1.480	1.480	1.160	.710	.900	1.480	1.600	2.050	.650
16 APR 85	.900	1.000	1.130	1.110	1.030	.950	1.030	.620	1.080	1.080
7 MAY 85	< .020	NS	NS	NS	.020	< .020	< .020	< .020	< .020	< .020
4 JUN 85	.360	.170	.480	.530	.660	.560	.880	.830	.560	.670
2 JUL 85	.440	.270	.490	.340	.370	.330	.140	.620	.420	.330
6 AUG 85	1.300	.550	1.690	.580	1.050	.940	< .030	1.730	1.900	.900
10 SEP 85	< .070	< .070	< .070	< .070	< .070	.640	.720	< .070	< .070	.660

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SULFIDES

WATER QUALITY STANDARDS OCEAN : .0020 mg/l
LAGOONS: .0020 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	4.570	< .007	< .007	NS	NS
2 NOV 83	1.300	.480	.480	NS	NS
5 DEC 83	2.150	1.480	1.850	NS	NS
4 JAN 84	.930	1.730	2.000	NS	NS
6 FEB 84	2.100	2.300	2.200	2.200	NS
5 MAR 84	2.270	2.600	2.050	NS	NS
2 APR 84	2.270	2.600	2.200	2.000	NS
14 MAY 84	2.130	2.270	NS	NS	NS
13 JUN 84	2.130	2.200	2.000	NS	NS
2 JUL 84	2.330	2.000	2.270	2.330	NS
6 AUG 84	2.470	2.600	2.530	1.100	NS
10 SEP 84	< .070	< .070	.800	.530	NS
OCT 84	< .070	< .070	< .070	< .070	NS
NOV 84	< .070	< .070	< .070	NS	NS
DEC 84	1.010	.560	1.460	NS	NS
JAN 85	.170	.280	.110	.360	.170
FEB 85	.300	< .070	.110	NS	NS
5 MAR 85	1.350	1.410	< .070	.810	NS
16 APR 85	.830	1.030	1.030	.850	1.210
7 MAY 85	< .020	< .020	< .020	NS	NS
4 JUN 85	.780	1.240	.730	1.000	.750
2 JUL 85	.190	.190	< .020	NS	NS
6 AUG 85	.360	.360	.220	.880	1.000
10 SEP 85	.590	< .070	.640	.640	.660


SULFIDES
CONCENTRATION (MG/L)
5.000
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85
WQS
OCEAN
LAGOONS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: TEMPERATURE

WATER QUALITY STANDARDS OCEAN : 34.5000 C
LAGOONS: 34.5000 C

OCEAN

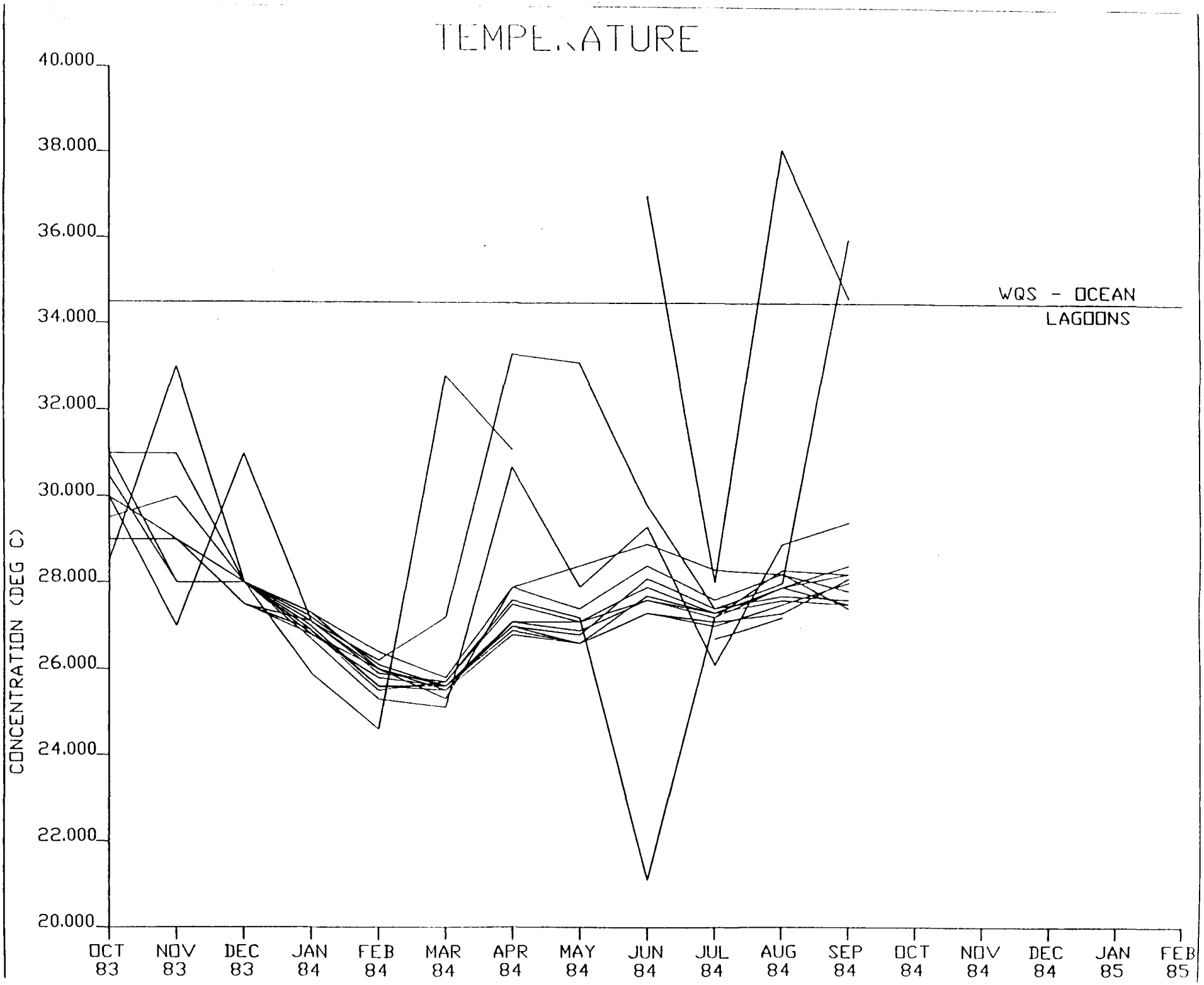
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	29.000	29.000	29.000	29.000	29.000	30.500	31.000	30.000	29.500	29.000
2 NOV 83	29.000	29.000	29.000	29.000	29.000	28.000	28.000	29.000	30.000	29.000
5 DEC 83	28.000	28.000	27.500	27.500	27.500	28.000	28.000	28.000	28.000	28.000
4 JAN 84	26.900	27.000	26.900	26.800	27.100	26.800	27.300	27.300	27.100	27.200
6 FEB 84	25.500	25.600	25.600	25.800	25.900	26.000	26.400	26.000	26.000	26.100
5 MAR 84	25.700	25.500	25.600	25.600	25.700	25.300	25.800	25.500	25.600	25.600
2 APR 84	27.600	27.100	26.900	27.000	27.500	27.900	27.900	26.800	27.100	27.000
14 MAY 84	27.200	26.900	26.600	26.600	27.100	27.400	28.400	26.600	27.100	26.800
13 JUN 84	21.100	27.600	27.300	27.300	27.600	28.400	28.900	27.700	27.900	28.100
2 JUL 84	27.200	27.200	27.100	27.000	27.300	27.600	28.300	27.300	27.300	27.400
6 AUG 84	27.900	28.300	27.300	27.500	27.900	28.200	28.200	27.900	27.600	27.700
10 SEP 84	28.400	28.200	28.100	28.000	28.200	27.400	27.800	27.500	27.500	27.600
OCT 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: TEMPERATURE

WATER QUALITY STANDARDS
OCEAN : 34.5000 C
LAGOONS: 34.5000 C

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	31.000	30.000	28.500	NS	NS
2 NOV 83	31.000	27.000	33.000	NS	NS
5 DEC 83	28.000	31.000	28.000	NS	NS
4 JAN 84	26.700	27.100	25.900	NS	NS
6 FEB 84	25.300	26.200	24.600	25.800	NS
5 MAR 84	25.100	27.200	32.800	NS	NS
2 APR 84	30.700	33.300	31.100	26.700	NS
14 MAY 84	27.900	33.100	NS	NS	NS
13 JUN 84	29.300	29.800	37.000	NS	NS
2 JUL 84	26.100	27.400	28.000	26.700	NS
6 AUG 84	28.900	28.000	38.100	27.200	NS
10 SEP 84	29.400	36.000	34.600	NS	NS
OCT 84	NS	NS	NS	NS	NS
NOV 84	NS	NS	NS	NS	NS
DEC 84	NS	NS	NS	NS	NS
JAN 85	NS	NS	NS	NS	NS
FEB 85	NS	NS	NS	NS	NS


TEMPERATURE
CONCENTRATION (DEG C)
40.000
38.000
36.000
34.000
32.000
30.000
28.000
26.000
24.000
22.000
20.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SUSPENDED SOLIDS

WATER QUALITY STANDARDS OCEAN : NO STANDARD
LAGOONS: NO STANDARD

OCEAN

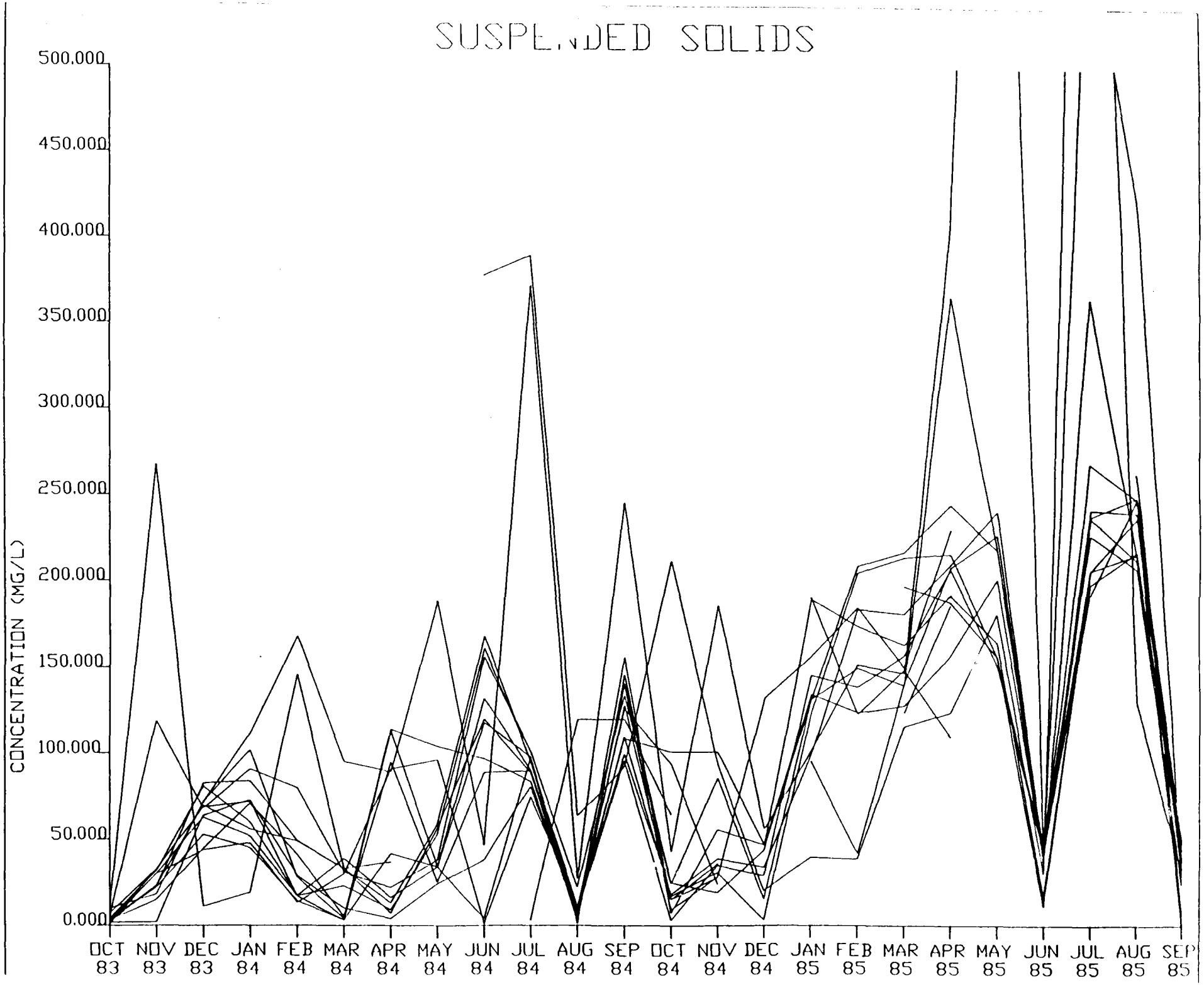
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	3.000	4.000	3.000	10.000	4.000	7.000	3.000	2.000	1.000	2.000
2 NOV 83	30.000	22.000	15.000	18.000	32.000	33.000	23.000	23.000	30.000	2.000
5 DEC 83	44.000	53.000	45.000	72.000	81.000	69.000	70.000	83.000	63.000	64.000
4 JAN 84	48.000	45.000	71.000	102.000	60.000	72.000	56.000	84.000	52.000	73.000
6 FEB 84	13.000	14.000	41.000	28.000	17.000	17.000	49.000	49.000	17.000	29.000
5 MAR 84	30.000	3.000	5.000	4.000	23.000	39.000	33.000	33.000	3.000	10.000
2 APR 84	91.000	113.000	95.000	114.000	9.000	16.000	13.000	7.000	42.000	4.000
14 MAY 84	96.000	34.000	25.000	104.000	53.000	34.000	59.000	56.000	34.000	24.000
13 JUN 84	1.000	4.000	89.000	97.000	161.000	118.000	168.000	120.000	132.000	38.000
2 JUL 84	75.000	98.000	90.000	84.000	96.000	98.000	95.000	89.000	90.000	81.000
6 AUG 84	10.000	4.000	< 1.000	6.000	11.000	3.000	6.000	7.000	9.000	5.000
10 SEP 84	109.000	128.000	146.000	140.000	126.000	141.000	156.000	96.000	100.000	110.000
OCT 84	101.000	15.000	15.000	9.000	94.000	25.000	7.000	3.000	18.000	17.000
NOV 84	101.000	28.000	36.000	28.000	24.000	19.000	56.000	35.000	39.000	31.000
DEC 84	47.000	133.000	NS	NS	NS	44.000	47.000	29.000	34.000	3.000
JAN 85	190.000	157.000	191.000	200.000	96.000	132.000	135.000	146.000	100.000	124.000
FEB 85	174.000	185.000	123.000	NS	42.000	209.000	124.000	139.000	184.000	205.000
5 MAR 85	163.000	150.000	149.000	197.000	141.000	217.000	128.000	157.000	181.000	214.000
16 APR 85	192.000	230.000	110.000	188.000	208.000	245.000	157.000	207.000	210.000	216.000
7 MAY 85	164.000	NS	NS	156.000	227.000	218.000	201.000	151.000	241.000	156.000
4 JUN 85	16.000	39.000	45.000	11.000	44.000	45.000	38.000	43.000	42.000	45.000
2 JUL 85	206.000	198.000	269.000	206.000	238.000	192.000	242.000	227.000	237.000	206.000
6 AUG 85	237.000	217.000	248.000	237.000	249.000	248.000	240.000	207.000	212.000	216.000
10 SEP 85	1.000	8.000	33.000	33.000	44.000	39.000	48.000	24.000	50.000	38.000

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: SUSPENDED SOLIDS

WATER QUALITY STANDARDS
OCEAN : NO STANDARD
LAGOONS: NO STANDARD

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	5.000	64.000	10.000	NS	NS
2 NOV 83	119.000	NS	268.000	NS	NS
5 DEC 83	68.000	72.000	11.000	NS	NS
4 JAN 84	91.000	112.000	19.000	NS	NS
6 FEB 84	80.000	168.000	146.000	18.000	NS
5 MAR 84	31.000	95.000	33.000	NS	NS
2 APR 84	22.000	89.000	37.000	139.000	NS
14 MAY 84	38.000	188.000	NS	NS	NS
13 JUN 84	156.000	47.000	378.000	NS	NS
2 JUL 84	102.000	372.000	390.000	3.000	NS
6 AUG 84	22.000	27.000	64.000	120.000	NS
10 SEP 84	134.000	246.000	92.000	120.000	NS
OCT 84	24.000	43.000	212.000	65.000	NS
NOV 84	86.000	186.000	94.000	NS	NS
DEC 84	15.000	56.000	20.000	NS	NS
JAN 85	132.000	102.000	40.000	160.000	129.000
FEB 85	150.000	152.000	39.000	NS	NS
5 MAR 85	140.000	147.000	116.000	124.000	NS
16 APR 85	366.000	408.000	124.000	186.000	169.000
7 MAY 85	218.000	979.000	181.000	NS	NS
4 JUN 85	37.000	40.000	30.000	56.000	40.000
2 JUL 85	365.000	593.000	952.000	NS	NS
6 AUG 85	214.000	424.000	130.000	237.000	263.000
10 SEP 85	37.000	27.000	31.000	32.000	6.000


SUSPENDED SOLIDS
CONCENTRATION (MG/L)
500.000
450.000
400.000
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: TURBIDITY

WATER QUALITY STANDARDS OCEAN : 10.0000 NTU
LAGOONS: 10.0000 NTU

OCEAN

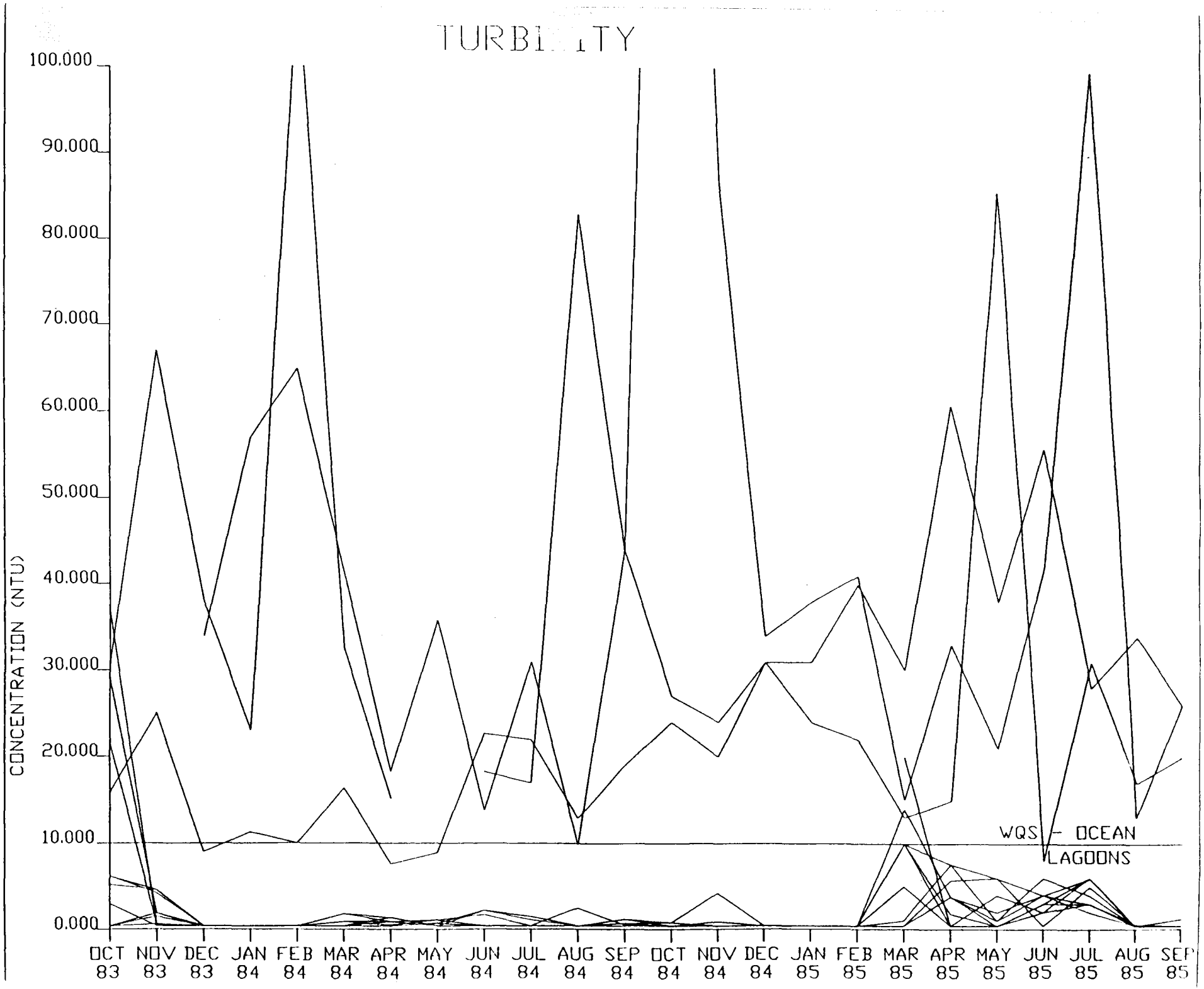
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	37.100	6.200	6.200	21.700	29.200	< .400	< .400	< .400	3.000	5.200
2 NOV 83	< .400	4.200	4.600	.600	1.900	1.500	1.900	.600	< .400	4.600
5 DEC 83	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
4 JAN 84	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
6 FEB 84	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
5 MAR 84	1.800	.400	< .400	.400	< .400	1.800	.400	.900	.900	< .400
2 APR 84	1.400	1.400	< .400	< .400	< .400	.900	.900	.500	.900	.900
14 MAY 84	< .400	< .400	.700	.700	.700	< .400	1.100	1.100	< .400	< .400
13 JUN 84	< .400	< .400	2.200	< .400	< .400	< .400	1.700	< .400	< .400	2.200
2 JUL 84	< .400	< .400	1.100	< .400	< .400	< .400	< .400	< .400	< .400	1.500
6 AUG 84	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
10 SEP 84	.700	1.200	1.200	.700	.700	.700	.700	< .400	.700	.700
OCT 84	< .400	.800	< .400	< .400	< .400	< .400	< .400	< .400	.800	.400
NOV 84	.900	.400	< .400	< .400	< .400	< .400	< .400	< .400	4.200	< .400
DEC 84	< .400	< .400	NS	NS	NS	< .400	< .400	< .400	< .400	< .400
JAN 85	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
FEB 85	< .400	< .400	< .400	NS	< .400	< .400	< .400	< .400	< .400	< .400
5 MAR 85	5.000	< .400	< .400	10.000	10.000	< .400	1.000	14.000	10.000	5.000
16 APR 85	< .400	5.700	3.800	7.600	1.800	3.800	7.600	3.800	< .400	< .400
7 MAY 85	4.000	6.000	2.000	1.000	< .400	.400	6.000	1.000	< .400	< .400
4 JUN 85	2.000	< .400	4.000	6.000	3.000	2.000	4.000	4.000	3.000	2.000
2 JUL 85	3.000	5.000	3.000	4.000	3.000	3.000	2.000	6.000	6.000	6.000
6 AUG 85	.540	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400	< .400
10 SEP 85	< .400	< .400	< .400	< .400	< .400	< .400	1.200	< .400	< .400	< .400

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: TURBIDITY

WATER QUALITY STANDARDS
OCEAN : 10.0000 NTU
LAGOONS: 10.0000 NTU

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	15.800	41.400	30.700	NS	NS
2 NOV 83	25.000	NS	67.000	NS	NS
5 DEC 83	9.000	34.000	38.000	NS	NS
4 JAN 84	11.300	57.000	23.000	NS	NS
6 FEB 84	10.000	65.000	110.000	< .400	NS
5 MAR 84	16.400	41.400	32.500	NS	NS
2 APR 84	7.600	18.300	15.200	1.000	NS
14 MAY 84	8.900	35.800	NS	NS	NS
13 JUN 84	22.700	13.800	18.300	NS	NS
2 JUL 84	22.000	31.000	17.000	< .400	NS
6 AUG 84	12.900	9.800	83.000	2.500	NS
10 SEP 84	19.000	44.000	44.000	.500	NS
OCT 84	24.000	27.000	225.000	.400	NS
NOV 84	20.000	24.000	87.000	NS	NS
DEC 84	31.000	31.000	34.000	NS	NS
JAN 85	31.000	24.000	38.000	< .400	< .400
FEB 85	40.000	22.000	41.000	NS	NS
5 MAR 85	30.000	13.000	15.000	20.000	NS
16 APR 85	61.000	15.000	33.000	< .400	< .400
7 MAY 85	38.000	86.000	21.000	NS	NS
4 JUN 85	56.000	8.000	42.000	5.000	< .400
2 JUL 85	28.000	31.000	>100.000	NS	NS
6 AUG 85	34.000	17.000	13.000	< .400	< .400
10 SEP 85	26.000	20.000	26.000	< .400	1.200


TURBIDITY
CONCENTRATION (NTU)
100.000
90.000
80.000
70.000
60.000
50.000
40.000
30.000
20.000
10.000
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85
SEP 85

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: ZINC

WATER QUALITY STANDARDS OCEAN : .0500 mg/l
LAGOONS: .0500 mg/l

OCEAN

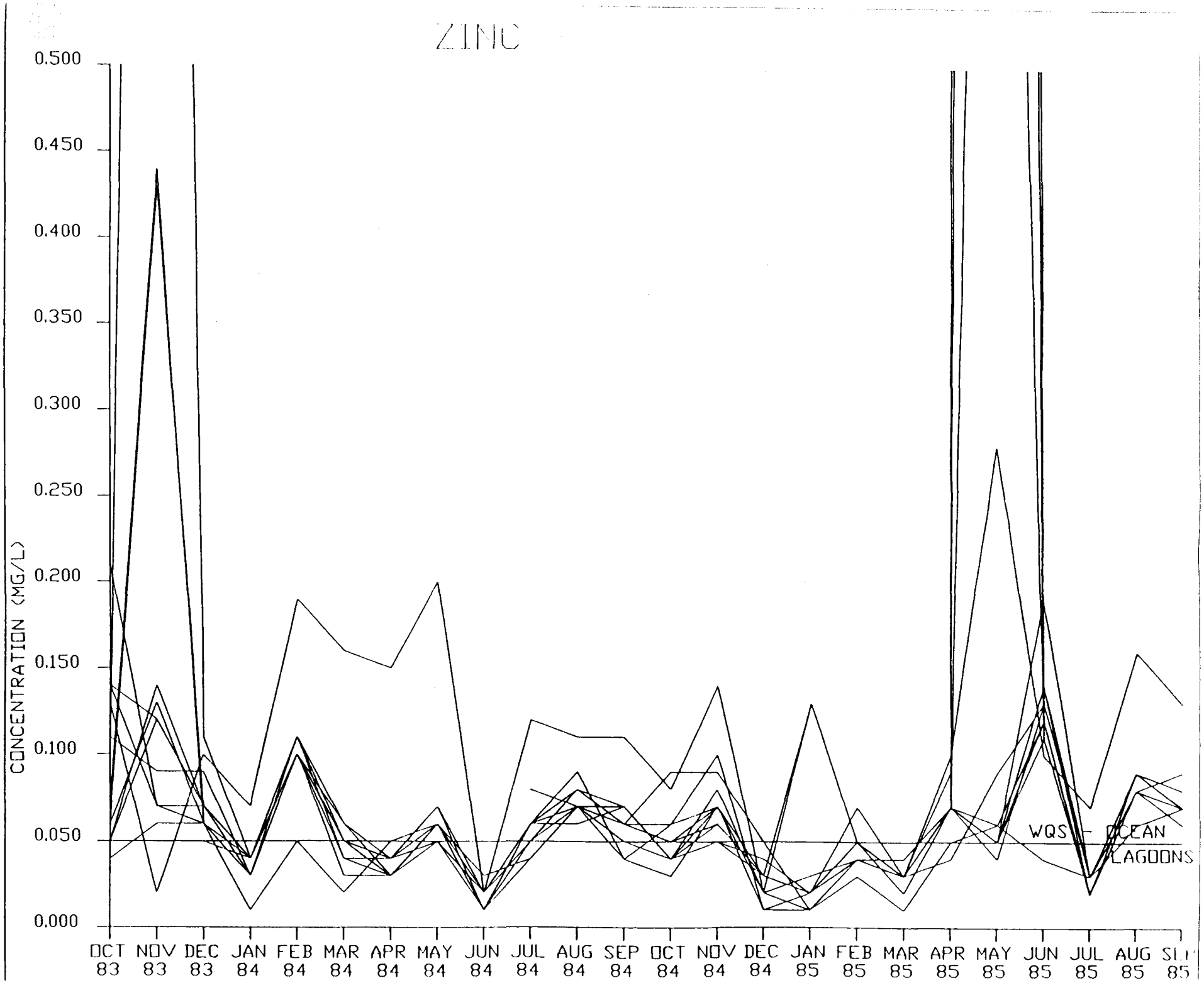
DATE	RW-01	RW-02	RW-03	RW-04	RW-05	RW-06	RW-07	RW-08	RW-09	RW-10
5 OCT 83	.050	.060	.060	.050	.140	.050	.210	.040	.140	.110
2 NOV 83	.050	.430	.130	.140	.120	.120	.070	.060	.070	.090
5 DEC 83	.050	.070	.060	.070	.070	.070	.060	.060	.070	.090
4 JAN 84	.040	.030	.040	.040	.040	.040	.030	.030	.030	.030
6 FEB 84	.100	.100	.100	.110	.100	.100	.100	.100	.110	.100
5 MAR 84	.060	.050	.050	.040	.030	.050	.050	.040	.050	.050
2 APR 84	.030	.030	.030	.030	.030	.050	.040	.040	.040	.040
14 MAY 84	.060	.060	.060	.050	.060	.060	.060	.050	.070	.050
13 JUN 84	.010	.010	.030	.020	.010	.020	.010	.020	.010	.010
2 JUL 84	.050	.040	.040	.050	.050	.060	.060	.060	.060	.060
6 AUG 84	.080	.070	.070	.080	.070	.080	.080	.060	.070	.070
10 SEP 84	.060	.060	.060	.060	.050	.060	.070	.070	.070	.070
OCT 84	.090	.060	.050	.050	.050	.050	.040	.040	.040	.040
NOV 84	.090	.070	.070	.060	.060	.050	.050	.060	.070	.080
DEC 84	.050	.020	NS	NS	NS	.040	.030	.030	.030	.020
JAN 85	.010	.010	.020	.020	.020	.020	.020	.020	.130	.130
FEB 85	.040	.040	.040	.040	.050	.040	.050	.050	.050	.050
5 MAR 85	.030	.040	.030	.040	.030	.030	.030	.020	.020	.030
16 APR 85	.090	.070	.070	.070	.070	.070	.070	.070	.070	.070
7 MAY 85	4.900	.050	16.000	.050	1.310	.050	.040	.060	.050	.050
4 JUN 85	.120	.190	.120	.110	.110	.140	.130	.120	.120	.140
2 JUL 85	.020	.030	.020	.020	.020	.020	.030	.020	.020	.030
6 AUG 85	.090	.090	.080	.090	.080	.080	.080	.080	.080	.080
10 SEP 85	.070	.070	.070	.070	.060	.070	.070	.070	.070	.070

ATLANTIC FLEET WEAPONS TRAINING FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

PARAMETER: ZINC

WATER QUALITY STANDARDS OCEAN : .0500 mg/l
LAGOONS: .0500 mg/l

	LAGOONS			STRAYS	
DATE	RW-11	RW-12	RW-13	RW-14	RW-15
5 OCT 83	.100	.130	.070	NS	NS
2 NOV 83	1.820	.020	.440	NS	NS
5 DEC 83	.110	.100	.060	NS	NS
4 JAN 84	.040	.070	.010	NS	NS
6 FEB 84	.110	.190	.050	.100	NS
5 MAR 84	.060	.160	.020	NS	NS
2 APR 84	.040	.150	.050	.030	NS
14 MAY 84	.070	.200	NS	NS	NS
13 JUN 84	.020	.020	.010	NS	NS
2 JUL 84	.060	.120	.060	.080	NS
6 AUG 84	.090	.110	.070	.070	NS
10 SEP 84	.040	.110	.040	.050	NS
OCT 84	.060	.080	.030	.040	NS
NOV 84	.100	.140	.070	NS	NS
DEC 84	.010	.020	.010	NS	NS
JAN 85	.020	.030	.010	.520	.140
FEB 85	.070	.040	.030	NS	NS
5 MAR 85	.030	.030	.010	.030	NS
16 APR 85	.040	.100	.050	.070	.070
7 MAY 85	.090	.280	.060	NS	NS
4 JUN 85	.130	.100	.040	.150	.180
2 JUL 85	.030	.070	.030	NS	NS
6 AUG 85	.090	.160	.060	.080	.080
10 SEP 85	.080	.130	.070	.070	.090


ZINC
CONCENTRATION (MG/L)
0.500
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
WQS - OCEAN
LAGOONS
OCT 83
NOV 83
DEC 83
JAN 84
FEB 84
MAR 84
APR 84
MAY 84
JUN 84
JUL 84
AUG 84
SEP 84
OCT 84
NOV 84
DEC 84
JAN 85
FEB 85
MAR 85
APR 85
MAY 85
JUN 85
JUL 85
AUG 85

ATLANTIC FLEET WEAPONS TRA[illegible]G FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

DATE	ARSENIC (mg/l)	BARIUM (mg/l)	BORON (mg/l)	CADMIUM (mg/l)	CHROMIUM, HEXAVALENT (ug/l)	CHROMIUM, TOTAL (mg/l)	COPPER (mg/l)	IRON (mg/l)	LEAD (mg/l)
20 JAN 86	.007	< .010	57.890	.003	< 3.000	< .007	.011	.024	< .003
22 JAN 86	.011	< .010	56.290	.002	< 3.000	< .007	.006	.063	< .003
24 FEB 86	< .003	.560	6.080	< .000	< 3.000	< .007	.013	.079	< .003
26 FEB 86	< .003	.480	1.980	< .000	< 3.000	< .007	.016	.368	< .003
5 MAR 86	< .003	.640	9.570	.001	< 3.000	< .007	.013	.046	< .003
6 MAR 86	< .003	.810	23.200	.006	< 3.000	< .007	.028	.132	< .003
15 MAY 86	< .003	< .010	6.970	< .000	< 3.000	.012	.020	.033	.043
19 MAY 86	< .003	< .010	7.200	< .000	< 3.000	< .007	.022	.030	.048
11 JUN 86	.004	.830	1.260	.001	< 3.000	< .007	.010	< .007	< .003
29 JUL 86	< .003	< .010	9.630	< .000	< 3.000	< .007	.034	.025	.009
31 JUL 86	.005	< .010	11.700	.007	< 3.000	< .007	.043	.025	< .003
26 AUG 86	< .003	< .010	5.950	.003	< 3.000	< .007	.025	.087	< .003
24 SEP 86	< .003	.390	5.920	.002	< 3.000	< .007	.019	.040	.005
27 SEP 86	< .003	.280	5.880	.001	< 3.000	< .007	.014	.034	.004
24 OCT 86	< .003	.390	5.860	.002	< 3.000	< .007	.009	.041	.005
30 OCT 86	< .003	.450	5.920	.002	< 3.000	< .007	.012	.025	.004
5 NOV 86	< .003	< .010	6.490	.002	< 3.000	< .007	.003	.020	< .003
6 NOV 86	< .003	< .010	6.800	.001	< 3.000	< .007	.012	.016	< .003
28 JAN 87	< .003	.210	5.190	.002	< 3.000	< .007	.079	.027	.023
20 FEB 87	< .003	.030	8.580	.007	< 3.000	< .007	.008	.025	< .003
21 FEB 87	< .003	.040	9.210	.006	< 3.000	< .007	.007	.020	< .003
5 MAR 87	< .010	< .500	4.100	.005	< 10.000	< .025	< .010	.320	< .025
17 MAR 87	< .040	< .300	< .500	.100	< 50.000	< .050	.100	< .030	< .010
13 APR 87	< .020	< .050	< .050	< .001	< 10.000	< .050	.030	.030	< .010
15 APR 87	< .010	< .100	< .500	< .010	< 10.000	NS	.100	.040	< .010
1 JUN 87	.036	.200	< .500	.052	< 10.000	< .050	.070	.200	.025
2 JUN 87	.034	< .500	< .500	.047	< 10.000	< .050	.070	.140	.017
16 JUL 87	.010	< .500	< .200	< .005	< 10.000	< .050	< .020	< .030	< .010
17 JUL 87	.010	< .500	< .200	< .005	< 10.000	< .050	.070	< .030	< .010
17 AUG 87	.020	< .500	< .200	< .005	< 10.000	< .050	.120	.360	.010
18 AUG 87	.020	< .500	< .200	< .005	< 10.000	.050	.110	.340	< .010
4 SEP 87	< .010	< .500	< .200	< .005	< 10.000	< .050	.090	.230	< .001
15 SEP 87	< .050	< .500	< .100	< .005	< 10.000	< .050	.080	.630	< .050
23 OCT 87	.020	< .050	< .100	< .005	< 10.000	< .050	.070	.330	< .010
28 OCT 87	.066	< .250	< .100	< .005	10.000	< .050	< .070	< .020	< .010
6 NOV 87	.057	< .500	< .100	.001	< 10.000	< .050	.080	.030	< .020
13 NOV 87	.020	< .500	< .100	< .005	< 10.000	< .050	.090	.400	< .020
16 JAN 88	< .010	< .100	3.400	< .005	< 10.000	< .050	.020	< .020	< .005
22 JAN 88	< .010	< .100	1.300	NS	40.000	< .050	< .020	.080	< .010
8 FEB 88	.020	< .050	.700	NS	< 10.000	< .050	< .020	< .030	< .010
9 FEB 88	.020	< .050	.700	< .005	< 10.000	< .050	< .020	< .030	< .010
5 APR 88	.010	< .050	1.460	NS	< 10.000	< .050	< .020	< .030	< .001
7 APR 88	.030	< .050	.300	NS	< 10.000	< .050	.020	< .030	< .001
16 MAY 88	.011	< .050	1.430	< .005	< 10.000	< .100	< .020	.050	< .010
19 MAY 88	.017	< .500	1.310	< .005	< 10.000	< .050	< .020	.020	< .020
24 JUN 88	.020	< .150	3.230	< .005	< 10.000	< .050	< .020	.030	< .050
3 AUG 88	.020	< .150	3.000	< .005	< 10.000	< .050	< .020	.510	< .050
4 AUG 88	.020	< .150	3.290	< .005	< 10.000	< .050	< .020	< .030	< .050
7 SEP 88	.002	< .030	4.190	< .005	< 10.000	< .050	< .020	.030	< .050
4 OCT 88	< .001	< .030	1.280	.007	< 10.000	< .050	< .020	.100	< .050
5 OCT 88	.040	< .030	1.150	< .005	< 10.000	< .050	< .020	.070	< .050
1 NOV 88	.010	.040	.130	< .005	< 10.000	< .050	< .020	< .030	< .050
[illegible]	NS	NS	NS	NS	NS	NS	NS	NS	NS

ATLANTIC FLEET WEAPONS TRA G FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

DATE	MANGANESE (mg/l)	MERCURY (ug/l)	SELENIUM (mg/l)	SILVER (mg/l)	ZINC (mg/l)	CYANIDE (ug/l)	FLUORIDE (mg/l)	NITRATE+ NITRITE (mg/l)	AMMONIA (mg/l)
20 JAN 86	< .005	< 1.000	< .030	< .001	< .001	< 20.000	.800	< .010	.060
22 JAN 86	.013	< 1.000	< .030	< .001	< .001	< 20.000	.800	< .010	.050
24 FEB 86	< .005	< 1.000	< .003	< .001	< .001	< 20.000	.510	< .003	.240
26 FEB 86	< .005	< 1.000	.015	< .001	< .001	< 20.000	.560	< .003	.100
5 MAR 86	< .005	< 1.000	< .003	< .001	< .001	< 20.000	.550	< .003	.060
6 MAR 86	< .005	< 1.000	< .008	< .001	< .001	< 20.000	.550	< .003	.040
15 MAY 86	.020	< 1.000	< .003	< .001	.350	< 20.000	.520	< .003	.090
19 MAY 86	.017	< 1.000	< .003	< .001	.019	< 20.000	.470	< .003	.110
11 JUN 86	.006	< 1.000	.008	< .001	.004	< 20.000	.560	< .003	.340
29 JUL 86	< .005	< 1.000	< .003	< .001	.015	< 20.000	.440	< .003	< .030
31 JUL 86	< .005	1.000	< .003	< .001	.073	< 20.000	.520	< .003	< .030
26 AUG 86	< .005	< 1.000	< .003	< .001	.120	< 20.000	.600	.035	< .030
24 SEP 86	< .005	< 1.000	< .003	< .001	.039	< 20.000	.410	.010	.010
27 SEP 86	< .005	< 1.000	< .003	< .001	.039	< 20.000	.450	.030	< .010
24 OCT 86	< .005	< 1.000	< .003	< .001	.050	< 20.000	.540	.120	< .030
30 OCT 86	< .005	< 1.000	< .003	< .001	.008	< 20.000	.550	.070	< .030
5 NOV 86	< .005	< .500	< .003	< .001	.007	< 20.000	.560	.530	< .030
6 NOV 86	< .005	< .500	< .003	< .001	.010	< 20.000	.510	.690	.050
28 JAN 87	< .005	< .500	< .003	< .001	.008	< 20.000	.480	< .003	.070
20 FEB 87	< .005	3.000	< .003	.009	.006	< 20.000	.970	.160	< .030
21 FEB 87	< .005	2.000	< .003	.007	.006	< 20.000	1.370	.060	.040
5 MAR 87	.015	NS	< .005	< .005	.010	< 10.000	.950	< .060	< .050
17 MAR 87	.010	< .500	NS	< .001	.010	< 10.000	.950	< .060	.120
13 APR 87	.050	< .500	NS	< .001	.010	< 10.000	< .100	.370	.110
15 APR 87	< .100	< .500	NS	< .001	< .010	< 10.000	1.300	NS	.080
1 JUN 87	.020	< .500	NS	< .001	.020	< 10.000	1.000	< .100	.140
2 JUN 87	.040	1.200	NS	< .001	.010	< 10.000	1.000	< .060	.110
16 JUL 87	< .010	< .500	NS	< .001	< .010	< 10.000	1.000	< .060	.090
17 JUL 87	.020	< .500	NS	< .002	.020	< 10.000	.950	< .060	< .050
17 AUG 87	.050	< .500	.050	< .002	< .010	< 10.000	.950	13.515	.050
18 AUG 87	.050	< .500	< .010	< .002	< .010	< 10.000	1.000	.810	.050
4 SEP 87	.030	< .500	.032	< .001	< .010	< 10.000	.850	< .030	.110
15 SEP 87	.020	< .500	.028	.050	.010	< 10.000	.770	< .050	.150
23 OCT 87	.030	.600	.040	.003	< .010	< 10.000	.850	< .050	.120
28 OCT 87	< .010	< .500	.040	.007	.010	< 50.000	1.000	< .050	.110
6 NOV 87	.040	< .500	< .050	< .002	.010	< 10.000	1.000	< .050	.180
13 NOV 87	.050	< .500	NS	< .004	.010	10.000	1.000	< .050	.060
16 JAN 88	.030	< .500	.045	< .002	< .010	< 10.000	.800	< .050	.050
22 JAN 88	.040	< .500	.090	< .002	.020	< 10.000	1.000	< .050	.120
8 FEB 88	.010	< .500	.030	< .002	.060	< 10.000	1.000	< .050	.270
9 FEB 88	.020	< .500	.030	< .010	.070	< 10.000	1.000	< .050	.130
5 APR 88	.030	< .500	.170	< .004	< .010	< 10.000	.700	< .050	.250
7 APR 88	.030	< .500	.150	< .004	.020	< 10.000	.700	< .050	.180
16 MAY 88	.030	.500	.035	< .004	.010	30.000	.950	< .050	.100
19 MAY 88	.030	< .500	.013	< .004	.010	< 10.000	1.000	1.310	.060
24 JUN 88	.020	< .400	.140	.010	< .010	< 10.000	1.400	< .050	.110
3 AUG 88	.040	< .500	.177	< .010	.020	< 10.000	.750	< .050	< .060
4 AUG 88	.030	< .500	.184	< .010	< .010	< 10.000	1.250	< .050	< .060
7 SEP 88	.040	< .400	.004	< .010	< .010	< 10.000	1.200	.070	< .050
4 OCT 88	.030	< .400	.030	< .010	.030	< 10.000	.900	< .050	.040
5 OCT 88	.030	.700	.050	< .010	.010	< 10.000	.900	< .050	< .050
1 NOV 88	.030	< .400	.870	< .000	< .010	< 10.000	.850	.080	< .050
2 NOV 88	NS	NS	NS	NS	NS	< 10.000	.850	< .050	< .050

ATLANTIC FLEET WEAPONS TRA G FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

DATE	SULFIDES (mg/l)	PHENOLS (ug/l)	TURBIDITY (NTU)	COLOR (PCU)	SUSPENDED SOLIDS (mg/l)	OIL & GREASE (mg/l)
20 JAN 86	< 1.000	< 20.000	< .400	5.000	4.000	1.000
22 JAN 86	< 1.000	30.000	< .400	3.000	9.000	1.000
24 FEB 86	< 1.000	< 2.000	< .400	1.000	21.000	< 1.000
26 FEB 86	< 1.000	< 2.000	< .400	1.000	13.000	1.000
5 MAR 86	.060	< 2.000	< .040	1.000	30.000	< 1.000
6 MAR 86	.050	12.000	< .040	5.000	14.000	19.000
15 MAY 86	< 1.000	4.000	< .400	1.000	7.000	15.000
19 MAY 86	< 1.000	< 2.000	< .400	1.000	188.000	2.000
11 JUN 86	10.000	< 2.000	.400	1.000	18.000	1.000
29 JUL 86	.200	< 2.000	2.600	5.000	18.000	< 1.000
31 JUL 86	< .050	< 2.000	< 1.000	5.000	14.000	1.000
26 AUG 86	< .050	< 2.000	< 1.000	< 5.000	10.000	3.000
24 SEP 86	< 1.000	< 2.000	< 1.000	5.000	11.000	5.000
27 SEP 86	< 1.000	< 2.000	< 1.000	< 5.000	11.000	6.000
24 OCT 86	< 1.000	< 2.000	2.800	5.000	21.000	< 1.000
30 OCT 86	< 1.000	13.000	< 1.000	5.000	10.000	< 1.000
5 NOV 86	< 1.000	< 2.000	< 1.000	5.000	9.000	< 1.000
6 NOV 86	< 1.000	< 2.000	< 1.000	5.000	10.000	< 1.000
28 JAN 87	< 1.000	< 2.000	< 1.000	5.000	30.000	< 1.000
20 FEB 87	< 1.000	< 2.000	< 1.000	< 5.000	< 1.000	< 1.000
21 FEB 87	< 1.000	< 2.000	< 1.000	< 5.000	3.000	< 1.000
5 MAR 87	< .100	< 20.000	.190	< 5.000	42.000	< 1.000
17 MAR 87	< .100	< 10.000	.160	< 5.000	71.000	< 1.000
13 APR 87	< .100	< 10.000	.200	< 5.000	40.000	2.000
15 APR 87	< .100	< 10.000	.400	< 5.000	37.000	3.000
1 JUN 87	< .100	< 10.000	.110	< 5.000	33.000	< 1.000
2 JUN 87	< .100	< 10.000	.100	< 5.000	28.000	< 1.000
16 JUL 87	< .100	< 1.000	< .100	< 5.000	44.000	< 1.000
17 JUL 87	< .100	< 1.000	< .100	< 5.000	35.000	< 1.000
17 AUG 87	< .100	9.000	.300	5.000	52.000	< 1.000
18 AUG 87	< .100	5.000	1.200	< 5.000	28.000	< 1.000
4 SEP 87	< .010	3.000	1.200	< 5.000	54.000	< 1.000
15 SEP 87	< .100	2.000	< .100	< 5.000	31.000	< 1.000
23 OCT 87	< .100	2.000	1.000	< 5.000	55.000	6.000
28 OCT 87	< .100	1.600	2.100	< 5.000	91.000	5.000
6 NOV 87	< .100	2.000	.400	< 5.000	22.000	7.000
13 NOV 87	< .100	3.000	.400	5.000	24.000	8.000
16 JAN 88	< .010	< 1.000	.130	< 5.000	21.000	3.000
22 JAN 88	< .100	5.000	.600	5.000	26.000	< 1.000
8 FEB 88	< .100	6.000	.160	5.000	33.000	12.000
9 FEB 88	< .100	8.000	.500	10.000	26.000	9.000
5 APR 88	< .100	5.000	.100	< 5.000	32.000	8.000
7 APR 88	< .100	< 1.000	.300	< 5.000	32.000	< 1.000
16 MAY 88	< .100	7.000	2.600	< 5.000	39.000	< 1.000
19 MAY 88	< .100	3.000	.400	< 5.000	22.000	< 1.000
24 JUN 88	< .100	2.000	.200	5.000	32.000	7.000
3 AUG 88	.710	< 10.000	.400	< 5.000	75.000	< 1.000
4 AUG 88	.610	< 10.000	1.200	< 5.000	30.000	1.000
7 SEP 88	< .050	< 10.000	.340	< 5.000	32.000	< 1.000
4 OCT 88	< .050	< 10.000	.230	< 5.000	24.000	< 1.000
5 OCT 88	< .050	< 10.000	.240	< 5.000	20.000	< 1.000
1 NOV 88	< .050	< 10.000	1.000	< 5.000	71.000	8.000
2 NOV 88	< .050	< 10.000	1.000	< 5.000	62.000	< 1.000

ATLANTIC FLEET WEAPONS TR/ G FACILITY
INNER RANGE, VIEQUES ISLAND, PUERTO RICO
WATER QUALITY STUDY

	(mg/l) ARSENIC	(mg/l) BARIUM	(mg/l) BORON	(mg/l) CADMIUM	(ug/l) CHROMIUM, HEXAVALENT	(mg/l) CHROMIUM, TOTAL	(mg/l) COPPER	(mg/l) IRON	(mg/l) LEAD
# SAMPLES	52	52	52	48	52	51	52	52	52
AVERAGE	.0145	.2438	5.6171	.0076	8.5192	.0329	.0362	.1042	.0162
STD DEV	.0150	.2385	11.2186	.0166	8.1829	.0231	.0321	.1431	.0173
MAXIMUM	.0660	.8300	57.8900	.1000	50.0000	.1000	.1200	.6300	.0500
MINIMUM	.0010	.0100	.0500	.0004	3.0000	.0070	.0030	.0070	.0010
MEDIAN	.0100	.1500	1.9800	.0050	10.0000	.0500	.0200	.0300	.0100

	(mg/l) MANGANESE	(ug/l) MERCURY	(mg/l) SELENIUM	(mg/l) SILVER	(mg/l) ZINC	(ug/l) CYANIDE	(mg/l) FLUORIDE	(mg/l) NITRATE+ NITRITE	(mg/l) AMMONIA
# SAMPLES	52	51	44	52	52	53	53	52	53
AVERAGE	.0217	.7471	.0548	.0041	.0240	15.0943	.8045	.3700	.0885
STD DEV	.0185	.4465	.1355	.0073	.0509	7.2384	.2714	1.8731	.0681
MAXIMUM	.1000	3.0000	.8700	.0500	.3500	50.0000	1.4000	13.5150	.3400
MINIMUM	.0050	.4000	.0030	.0002	.0010	10.0000	.1000	.0030	.0100
MEDIAN	.0200	.5000	.0150	.0010	.0100	10.0000	.8500	.0500	.0600

	(mg/l) SULFIDES	(ug/l) PHENOLS	(NTU) TURBIDITY	(PCU) COLOR	(mg/l) SUSPENDED SOLIDS	(mg/l) OIL & GREASE
# SAMPLES	53	53	53	53	53	53
AVERAGE	.5528	6.0113	.6743	4.6038	32.3774	3.0755
STD DEV	1.3866	5.7719	.6530	1.4979	29.2083	3.9019
MAXIMUM	10.0000	30.0000	2.8000	10.0000	188.0000	19.0000
MINIMUM	.0100	1.0000	.0400	1.0000	1.0000	1.0000
MEDIAN	.1000	3.0000	.4000	5.0000	28.0000	1.0000

ENGINEERING REPORT APPENDIX
VOLUME III

WATER QUALITY STUDY AT THE U. S. ATLANTIC FLEET WEAPONS TRAINING FACILITY

VIEQUES ISLAND, PUERTO RICO

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

CONTRACT N62470-87-C-9009
(A & E COMMISSION NO. 1735C)

SEPTEMBER 1990

TABLE OF CONTENTS

VOLUME III

ENGINEERING REPORT APPENDIX

APPENDIX

3. CORRELATION ANALYSIS: ORDINANCE USAGE VERSUS WATER QUALITY.

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.210	21.42
3	~~Mar 84~~ Dec 83	8	0.040	0.32
4	Apr 84	47	0.600	28.20
5	May 84	172	0.050	8.60
6	Jun 84	20	0.260	5.20
7	Jul 84	61	0.140	8.54
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.080	7.20
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.020	6.40
16	Apr 85	54	0.070	3.78
17	May 85			0.00
18	Jun 85	51	0.010	0.51
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.290	28.42
		2742	2.020	173.59

Y ave. = 137.10 N= 20.00
X ave. = 0.10
XY = 173.59
Sy = 147.684
Sx = 0.144

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.255

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.280	28.56
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.270	12.69
5	May 84	172	0.050	8.60
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.030	0.42
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.040	2.16
17	May 85			0.00
18	Jun 85	51	0.020	1.02
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.030	15.87
21	Sep 85	98	0.130	12.74
		2690	1.210	122.15

Y ave. = 149.44 N= 18.00
X ave. = 0.07
XY = 122.15
Sy = 150.748
Sx = 0.083

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.275

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.270	27.54
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.200	9.40
5	May 84	172	0.040	6.88
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.080	4.88
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.060	3.24
17	May 85			0.00
18	Jun 85	51	0.020	1.02
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.020	10.58
21	Sep 85	98	0.100	9.80
		2552	1.040	100.92

Y ave. = 150.12 N= 17.00
X ave. = 0.06
XY = 100.92
Sy = 155.360
Sx = 0.072

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.307

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.170	17.34
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.180	8.46
5	May 84	172	0.030	5.16
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.030	0.42
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.060	3.24
17	May 85	20	0.010	0.20
18	Jun 85	51	0.010	0.51
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.020	10.58
21	Sep 85	98	0.090	8.82
		2572	0.950	89.22

Y ave. = 142.89 N= 18.00
X ave. = 0.05
XY = 89.22
Sy = 153.810
Sx = 0.053

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.338

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.270	27.54
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.080	3.76
5	May 84	172	0.150	25.80
6	Jun 84	20	0.070	1.40
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.040	2.16
17	May 85	20	0.010	0.20
18	Jun 85	51	0.010	0.51
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.020	10.58
21	Sep 85	98	0.070	6.86
		2572	0.940	105.47

Y ave. = 142.89 N= 18.00
X ave. = 0.05
XY = 105.47
Sy = 153.810
Sx = 0.066

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = -0.168

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.370	37.74
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.040	1.88
5	May 84	172	0.080	13.76
6	Jun 84	20	0.050	1.00
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.020	1.80
12	Dec 84	138	0.020	2.76
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.060	3.24
17	May 85			0.00
18	Jun 85	51	0.030	1.53
19	Jul 85	339	0.020	6.78
20	Aug 85			0.00
21	Sep 85	98	0.060	5.88
		2161	0.960	102.12

Y ave. = 127.12 N= 17.00
X ave. = 0.06
XY = 102.12
Sy = 120.879
Sx = 0.085

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.122

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.120	12.24
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.040	1.88
5	May 84	172	0.060	10.32
6	Jun 84	20	0.050	1.00
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.010	0.28
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.060	3.24
17	May 85			0.00
18	Jun 85	51	0.020	1.02
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.010	5.29
21	Sep 85	98	0.060	5.88
		2690	0.640	69.20

Y ave. = 149.44 N= 18.00
X ave. = 0.04
XY = 69.20
Sy = 150.748
Sx = 0.029

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.356

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.150	15.30
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.030	1.41
5	May 84	172	0.040	6.88
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.140	8.54
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.010	0.84
10	Oct 84	28	0.010	0.28
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85	320	0.010	3.20
16	Apr 85	54	0.060	3.24
17	May 85			0.00
18	Jun 85	51	0.010	0.51
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.010	5.29
21	Sep 85	98	0.050	4.90
		2690	0.680	72.91

Y ave. = 149.44 N= 18.00
X ave. = 0.04
XY = 72.91
Sy = 150.748
Sx = 0.042

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.266

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.320	32.64
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.030	1.41
5	May 84	172	0.060	10.32
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.080	4.88
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.010	0.28
11	Nov 84	90	0.020	1.80
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85			0.00
16	Apr 85	54	0.060	3.24
17	May 85			0.00
18	Jun 85	51	0.010	0.51
19	Jul 85	339	0.010	3.39
20	Aug 85			0.00
21	Sep 85	98	0.050	4.90
		1841	0.760	76.99

Y ave. = 115.06 N= 16.00
X ave. = 0.05
XY = 76.99
Sy = 113.801
Sx = 0.076

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.081

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) AMMONIA	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.030	1.41
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.020	1.68
10	Oct 84	28	0.010	0.28
11	Nov 84	90	0.020	1.80
12	Dec 84	138	0.010	1.38
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.020	0.28
15	Mar 85			0.00
16	Apr 85	54	0.050	2.70
17	May 85	20	0.010	0.20
18	Jun 85			0.00
19	Jul 85	339	0.020	6.78
20	Aug 85			0.00
21	Sep 85	98	0.050	4.90
		1810	0.540	55.98

Y ave. = 113.13 N= 16.00
X ave. = 0.03
XY = 55.98
Sy = 115.219
Sx = 0.027

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.108

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.043	1.89
2	Nov 83	102	0.047	4.79
3	~~Mar 84~~ Dec 83	8	0.025	0.20
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85	529	0.005	2.65
21	Sep 85			0.00
		683	0.120	9.53

Y ave. = 170.75 N= 4.00
X ave. = 0.03
XY = 9.53
Sy = 241.952
Sx = 0.019

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.786

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.054	2.38
2	Nov 83	102	0.082	8.36
3	~~Mar 84~~ Dec 83	8	0.022	0.18
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.158	10.92

Y ave. = 51.33 N= 3.00
X ave. = 0.05
XY = 10.92
Sy = 47.427
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.985

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.138	14.08
3	~~Mar 84~~ Dec 83	8	0.037	0.30
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.205	15.69

Y ave. = 51.33 N= 3.00
X ave. = 0.07
XY = 15.69
Sy = 47.427
Sx = 0.060

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.902

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.029	1.28
2	Nov 83	102	0.059	6.02
3	~~Mar 84~~ Dec 83	8	0.062	0.50
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.150	7.79

Y ave. = 51.33 N= 3.00
X ave. = 0.05
XY = 7.79
Sy = 47.427
Sx = 0.018

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.052

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) Arsenic	Xi * Yi
1	Oct 83	44	0.027	1.19
2	Nov 83	102	0.064	6.53
3	~~Mar 84~~ Dec 83	8	0.033	0.26
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.124	7.98

Y ave. = 51.33 N= 3.00
X ave. = 0.04
XY = 7.98
Sy = 47.427
Sx = 0.020

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.857

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.016	0.70
2	Nov 83	102	0.066	6.73
3	~~Mar 84~~ Dec 83	8	0.038	0.30
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85	529	0.003	1.59
21	Sep 85			0.00
		683	0.123	9.33

Y ave. = 170.75 N= 4.00
X ave. = 0.03
XY = 9.33
Sy = 241.952
Sx = 0.028

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.583

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.033	1.45
2	Nov 83	102	0.049	5.00
3	~~Mar 84~~ Dec 83	8	0.018	0.14
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85	529	0.006	3.17
21	Sep 85			0.00
		683	0.106	9.77

Y ave. = 170.75 N= 4.00
X ave. = 0.03
XY = 9.77
Sy = 241.952
Sx = 0.019

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.616

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.042	1.85
2	Nov 83	102	0.057	5.81
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.179	8.30

Y ave. = 51.33 N= 3.00
X ave. = 0.06
XY = 8.30
Sy = 47.427
Sx = 0.019

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.488

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.054	2.38
2	Nov 83	102	0.164	16.73
3	~~Mar 84~~ Dec 83	8	0.016	0.13
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85	529	0.004	2.12
21	Sep 85			0.00
		683	0.238	21.35

Y ave. = 170.75 N= 4.00
X ave. = 0.06
XY = 21.35
Sy = 241.952
Sx = 0.073

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.365

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) ARSENIC	Xi * Yi
1	Oct 83	44	0.056	2.46
2	Nov 83	102	0.063	6.43
3	~~Mar 84~~ Dec 83	8	0.020	0.16
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.139	9.05

Y ave. = 51.33 N= 3.00
X ave. = 0.05
XY = 9.05
Sy = 47.427
Sx = 0.023

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.875

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.080	3.52
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	0.110	37.29
20	Aug 85	529	0.130	68.77
21	Sep 85			0.00
		1014	0.410	118.76

Y ave 253.50 N= 4.00
X ave. = 0.10
XY = 118.76
Sy = 223.646
Sx = 0.022

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.996

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.130	1.04
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	0.110	37.29
20	Aug 85	529	0.120	63.48
21	Sep 85			0.00
		1022	0.570	119.17

Y ave. = 204.40 N= 5.00
X ave. = 0.11
XY = 119.17
Sy = 222.637
Sx = 0.027

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.111

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.110	4.84
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	0.110	37.29
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1014	0.420	109.50

Y ave. = 253.50 N= 4.00
X ave. = 0.11
XY = 109.50
Sy = 223.646
Sx = 0.010

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.452

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.190	19.38
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	0.050	16.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	0.110	37.29
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1424	0.580	138.44

Y ave. = 237.33 N= 6.00
X ave. = 0.10
XY = 138.44
Sy = 189.546
Sx = 0.053

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.016

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1009	0.330	105.92

Y ave. = 252.25 N= 4.00
X ave. = 0.08
XY = 105.92
Sy = 224.308
Sx = 0.038

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.893

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.100	4.40
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1065	0.470	115.00

Y ave. = 213.00 N= 5.00
X ave. = 0.09
XY = 115.00
Sy = 213.809
Sx = 0.027

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.644

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.090	3.96
2	Nov 83	102	0.190	19.38
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1065	0.560	124.76

Y ave. = 213.00 N= 5.00
X ave. = 0.11
XY = 124.76
Sy = 213.809
Sx = 0.051

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.125

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1021	0.370	110.60

Y ave. = 255.25 N= 4.00
X ave. = 0.09
XY = 110.60
Sy = 221.477
Sx = 0.031

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.786

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1021	0.370	110.60

Y ave. = 255.25 N= 4.00
X ave. = 0.09
XY = 110.60
Sy = 221.477
Sx = 0.031

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.786

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) BARIUM	Xi * Yi
1	Oct 83	44	0.100	4.40
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.120	40.68
20	Aug 85	529	0.110	58.19
21	Sep 85			0.00
		1163	0.660	125.75

Y ave. = 166.14 N= 7.00
X ave. = 0.09
XY = 125.75
Sy = 193.495
Sx = 0.033

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.425

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.870	38.28
2	Nov 83	102	0.710	72.42
3	~~Mar 84~~ Dec 83	8	3.340	26.72
4	Apr 84	47	5.930	278.71
5	May 84	172	4.840	832.48
6	Jun 84	20	7.080	141.60
7	Jul 84	61	4.440	270.84
8	Aug 84	425	4.770	2027.25
9	Sep 84	84	7.190	603.96
10	Oct 84	28	6.000	168.00
11	Nov 84	90	6.890	620.10
12	Dec 84	138	5.950	821.10
13	Jan 85	118	6.260	738.68
14	Feb 85	14	4.710	65.94
15	Mar 85	320	4.120	1318.40
16	Apr 85	54	5.150	278.10
17	May 85	20	8.800	176.00
18	Jun 85	51	4.520	230.52
19	Jul 85	339	4.060	1376.34
20	Aug 85	529	5.370	2840.73
21	Sep 85	98	5.020	491.96
		2762	106.020	13418.13

Y ave. = 131.52 N= 21.00
X ave. = 5.05
XY = 13418.13
Sy = 146.195
Sx = 1.900

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.095

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.870	38.28
2	Nov 83	102	0.670	68.34
3	~~Mar 84~~ Dec 83	8	0.860	6.88
4	Apr 84	47	6.230	292.81
5	May 84	172	10.610	1824.92
6	Jun 84	20	5.180	103.60
7	Jul 84	61	6.090	371.49
8	Aug 84	425	5.520	2346.00
9	Sep 84	84	7.850	659.40
10	Oct 84	28	8.300	232.40
11	Nov 84	90	5.450	490.50
12	Dec 84	138	5.160	712.08
13	Jan 85	118	4.230	499.14
14	Feb 85	14	7.530	105.42
15	Mar 85	320	3.690	1180.80
16	Apr 85	54	3.030	163.62
17	May 85	20	1.900	38.00
18	Jun 85	51	4.910	250.41
19	Jul 85	339	3.850	1305.15
20	Aug 85	529	5.120	2708.48
21	Sep 85	98	5.180	507.64
		2762	102.230	13905.36

Y ave. = 131.52 N= 21.00
X ave. = 4.87
XY = 13905.36
Sy = 146.195
Sx = 2.548

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.062

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.900	91.80
3	~~Mar 84~~ Dec 83	8	0.860	6.88
4	Apr 84	47	6.310	296.57
5	May 84	172	5.830	1002.76
6	Jun 84	20	8.300	166.00
7	Jul 84	61	8.700	530.70
8	Aug 84	425	5.110	2171.75
9	Sep 84	84	6.450	541.80
10	Oct 84	28	8.000	224.00
11	Nov 84	90	7.800	702.00
12	Dec 84			0.00
13	Jan 85	118	6.160	726.88
14	Feb 85	14	5.990	83.86
15	Mar 85	320	4.020	1286.40
16	Apr 85	54	1.900	102.60
17	May 85	20	10.390	207.80
18	Jun 85	51	4.780	243.78
19	Jul 85	339	9.530	3230.67
20	Aug 85	529	4.530	2396.37
21	Sep 85	98	4.710	461.58
		2624	110.700	14493.12

Y ave. = 131.20 N= 20.00
X ave. = 5.54
XY = 14493.12
Sy = 149.985
Sx = 2.883

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.004

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	0.660	67.32
3	~~Mar 84~~ Dec 83	8	1.300	10.40
4	Apr 84	47	5.770	271.19
5	May 84	172	4.740	815.28
6	Jun 84	20	6.500	130.00
7	Jul 84	61	6.740	411.14
8	Aug 84	425	5.170	2197.25
9	Sep 84	84	7.540	633.36
10	Oct 84	28	12.200	341.60
11	Nov 84	90	6.700	603.00
12	Dec 84			0.00
13	Jan 85	118	6.760	797.68
14	Feb 85	14	6.560	91.84
15	Mar 85	320	7.690	2460.80
16	Apr 85			0.00
17	May 85	20	6.020	120.40
18	Jun 85	51	4.250	216.75
19	Jul 85	339	14.300	4847.70
20	Aug 85	529	8.040	4253.16
21	Sep 85	98	4.800	470.40
		2570	116.740	18783.27

Y ave. = 135.26 N= 19.00
X ave. = 6.14
XY = 18783.27
Sy = 152.960
Sx = 3.341

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.325

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.510	22.44
2	Nov 83	102	0.650	66.30
3	~~Mar 84~~ Dec 83	8	1.500	12.00
4	Apr 84	47	6.020	282.94
5	May 84	172	9.900	1702.80
6	Jun 84	20	5.600	112.00
7	Jul 84	61	4.180	254.98
8	Aug 84	425	5.320	2261.00
9	Sep 84	84	6.450	541.80
10	Oct 84	28	7.390	206.92
11	Nov 84	90	5.450	490.50
12	Dec 84			0.00
13	Jan 85	118	6.450	761.10
14	Feb 85	14	6.030	84.42
15	Mar 85	320	5.020	1606.40
16	Apr 85	54	2.460	132.84
17	May 85	20	6.560	131.20
18	Jun 85	51	4.780	243.78
19	Jul 85	339	7.900	2678.10
20	Aug 85	529	3.910	2068.39
21	Sep 85	98	4.300	421.40
		2624	100.380	14081.31

Y ave. = 131.20 N= 20.00
X ave. = 5.02
XY = 14081.31
Sy = 149.985
Sx = 2.381

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.134

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.650	28.60
2	Nov 83	102	0.680	69.36
3	~~Mar 84~~ Dec 83	8	0.920	7.36
4	Apr 84	47	4.470	210.09
5	May 84	172	18.670	3211.24
6	Jun 84	20	6.820	136.40
7	Jul 84	61	6.090	371.49
8	Aug 84	425	4.800	2040.00
9	Sep 84	84	7.500	630.00
10	Oct 84	28	5.100	142.80
11	Nov 84	90	5.760	518.40
12	Dec 84	138	4.230	583.74
13	Jan 85	118	7.040	830.72
14	Feb 85	14	5.960	83.44
15	Mar 85	320	4.130	1321.60
16	Apr 85	54	5.580	301.32
17	May 85	20	3.280	65.60
18	Jun 85	51	3.990	203.49
19	Jul 85	339	6.280	2128.92
20	Aug 85	529	4.810	2544.49
21	Sep 85	98	5.300	519.40
		2762	112.060	15948.46

Y ave. = 131.52 N= 21.00
X ave. = 5.34
XY = 15948.46
Sy = 146.195
Sx = 3.626

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.114

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.650	28.60
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	1.170	9.36
4	Apr 84	47	6.730	316.31
5	May 84	172	15.130	2602.36
6	Jun 84	20	6.150	123.00
7	Jul 84	61	4.180	254.98
8	Aug 84	425	5.110	2171.75
9	Sep 84	84	8.230	691.32
10	Oct 84	28	5.740	160.72
11	Nov 84	90	7.420	667.80
12	Dec 84	138	6.260	863.88
13	Jan 85	118	5.160	608.88
14	Feb 85	14	4.870	68.18
15	Mar 85	320	8.390	2684.80
16	Apr 85	54	8.980	484.92
17	May 85	20	8.800	176.00
18	Jun 85	51	5.440	277.44
19	Jul 85	339	4.300	1457.70
20	Aug 85	529	4.750	2512.75
21	Sep 85	98	5.240	513.52
		2762	123.150	16720.17

Y ave. = 131.52 N= 21.00
X ave. = 5.86
XY = 16720.17
Sy = 146.195
Sx = 3.219

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.056

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.930	40.92
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.920	7.36
4	Apr 84	47	7.110	334.17
5	May 84	172	25.880	4451.36
6	Jun 84	20	6.150	123.00
7	Jul 84	61	3.210	195.81
8	Aug 84	425	6.020	2558.50
9	Sep 84	84	7.500	630.00
10	Oct 84	28	6.070	169.96
11	Nov 84	90	5.570	501.30
12	Dec 84	138	6.230	859.74
13	Jan 85	118	5.730	676.14
14	Feb 85	14	3.930	55.02
15	Mar 85	320	8.390	2684.80
16	Apr 85	54	9.540	515.16
17	May 85	20	5.190	103.80
18	Jun 85	51	5.170	263.67
19	Jul 85	339	6.780	2298.42
20	Aug 85	529	12.900	6824.10
21	Sep 85	98	5.650	553.70
		2762	139.390	23899.97

Y ave. = 131.52 N= 21.00
X ave. = 6.64
XY = 23899.97
Sy = 146.195
Sx = 5.254

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.362

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.450	19.80
2	Nov 83	102	0.710	72.42
3	~~Mar 84~~ Dec 83	8	6.300	50.40
4	Apr 84	47	6.730	316.31
5	May 84	172	17.110	2942.92
6	Jun 84	20	5.880	117.60
7	Jul 84	61	3.790	231.19
8	Aug 84	425	5.860	2490.50
9	Sep 84	84	7.190	603.96
10	Oct 84	28	7.040	197.12
11	Nov 84	90	5.070	456.30
12	Dec 84	138	5.480	756.24
13	Jan 85	118	5.950	702.10
14	Feb 85	14	5.340	74.76
15	Mar 85	320	4.800	1536.00
16	Apr 85	54	4.730	255.42
17	May 85	20	0.500	10.00
18	Jun 85	51	5.040	257.04
19	Jul 85	339	9.690	3284.91
20	Aug 85	529	4.470	2364.63
21	Sep 85	98	5.930	581.14
		2762	118.060	17320.76

Y ave. = 131.52 N= 21.00
X ave. = 5.62
XY = 17320.76
Sy = 146.195
Sx = 3.457

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.177

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) BORON	Xi * Yi
1	Oct 83	44	0.700	30.80
2	Nov 83	102	0.460	46.92
3	~~Mar 84~~ Dec 83	8	2.300	18.40
4	Apr 84	47	6.600	310.20
5	May 84	172	5.200	894.40
6	Jun 84	20	5.940	118.80
7	Jul 84	61	3.920	239.12
8	Aug 84	425	5.580	2371.50
9	Sep 84	84	5.360	450.24
10	Oct 84	28	6.490	181.72
11	Nov 84	90	5.040	453.60
12	Dec 84	138	6.260	863.88
13	Jan 85	118	6.010	709.18
14	Feb 85	14	6.240	87.36
15	Mar 85	320	4.020	1286.40
16	Apr 85	54	5.290	285.66
17	May 85	20	3.550	71.00
18	Jun 85	51	4.650	237.15
19	Jul 85	339	10.760	3647.64
20	Aug 85	529	5.680	3004.72
21	Sep 85	98	6.810	667.38
		2762	106.860	15976.07

Y ave. = 131.52 N= 21.00
X ave. = 5.09
XY = 15976.07
Sy = 146.195
Sx = 2.212

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.297

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.102	4.49
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.079	0.63
4	Apr 84	47	0.090	4.23
5	May 84	172	0.085	14.62
6	Jun 84	20	0.055	1.10
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.135	57.38
9	Sep 84	84	0.074	6.22
10	Oct 84	28	0.069	1.93
11	Nov 84	90	0.102	9.18
12	Dec 84	138	0.028	3.86
13	Jan 85	118	0.023	2.71
14	Feb 85	14	0.082	1.15
15	Mar 85	320	0.113	36.16
16	Apr 85	54	0.090	4.86
17	May 85	20	0.111	2.22
18	Jun 85			0.00
19	Jul 85	339	0.051	17.29
20	Aug 85	529	0.139	73.53
21	Sep 85	98	0.067	6.57
		2711	1.685	263.41

Y ave. = 135.55 N= 20.00
X ave. = 0.08
XY = 263.41
Sy = 148.794
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.406

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.095	4.18
2	Nov 83	102	0.091	9.28
3	~~Mar 84~~ Dec 83	8	0.081	0.65
4	Apr 84	47	0.084	3.95
5	May 84	172	0.087	14.96
6	Jun 84	20	0.044	0.88
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.132	56.10
9	Sep 84	84	0.078	6.55
10	Oct 84	28	0.071	1.99
11	Nov 84	90	0.105	9.45
12	Dec 84	138	0.023	3.17
13	Jan 85	118	0.022	2.60
14	Feb 85	14	0.084	1.18
15	Mar 85	320	0.113	36.16
16	Apr 85	54	0.090	4.86
17	May 85	20	0.110	2.20
18	Jun 85			0.00
19	Jul 85	339	0.044	14.92
20	Aug 85	529	0.132	69.83
21	Sep 85	98	0.067	6.57
		2711	1.653	255.57

Y ave. = 135.55 N= 20.00
X ave. = 0.08
XY = 255.57
Sy = 148.794
Sx = 0.031

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.359

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.095	4.18
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.072	0.58
4	Apr 84	47	0.081	3.81
5	May 84	172	0.080	13.76
6	Jun 84	20	0.053	1.06
7	Jul 84	61	0.081	4.94
8	Aug 84	425	0.137	58.23
9	Sep 84	84	0.076	6.38
10	Oct 84	28	0.071	1.99
11	Nov 84	90	0.102	9.18
12	Dec 84			0.00
13	Jan 85	118	0.031	3.66
14	Feb 85	14	0.084	1.18
15	Mar 85	320	0.119	38.08
16	Apr 85	54	0.093	5.02
17	May 85	20	0.117	2.34
18	Jun 85			0.00
19	Jul 85	339	0.057	19.32
20	Aug 85	529	0.131	69.30
21	Sep 85	98	0.066	6.47
		2573	1.636	258.65

Y ave. = 135.42 N= 19.00
X ave. = 0.09
XY = 258.65
Sy = 152.870
Sx = 0.027

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.501

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.091	4.00
2	Nov 83	102	0.094	9.59
3	~~Mar 84~~ Dec 83	8	0.075	0.60
4	Apr 84	47	0.081	3.81
5	May 84	172	0.083	14.28
6	Jun 84	20	0.048	0.96
7	Jul 84	61	0.098	5.98
8	Aug 84	425	0.130	55.25
9	Sep 84	84	0.076	6.38
10	Oct 84	28	0.071	1.99
11	Nov 84	90	0.102	9.18
12	Dec 84			0.00
13	Jan 85	118	0.031	3.66
14	Feb 85	14	0.082	1.15
15	Mar 85	320	0.116	37.12
16	Apr 85	54	0.088	4.75
17	May 85	20	0.109	2.18
18	Jun 85	51	0.014	0.71
19	Jul 85	339	0.053	17.97
20	Aug 85	529	0.131	69.30
21	Sep 85	98	0.069	6.76
		2624	1.642	255.62

Y ave. = 131.20 N= 20.00
X ave. = 0.08
XY = 255.62
Sy = 149.985
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.470

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.091	4.00
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.078	0.62
4	Apr 84	47	0.084	3.95
5	May 84	172	0.081	13.93
6	Jun 84	20	0.053	1.06
7	Jul 84	61	0.091	5.55
8	Aug 84	425	0.114	48.45
9	Sep 84	84	0.067	5.63
10	Oct 84	28	0.066	1.85
11	Nov 84	90	0.102	9.18
12	Dec 84			0.00
13	Jan 85	118	0.033	3.89
14	Feb 85	14	0.084	1.18
15	Mar 85	320	0.113	36.16
16	Apr 85	54	0.090	4.86
17	May 85	20	0.109	2.18
18	Jun 85	51	0.014	0.71
19	Jul 85	339	0.049	16.61
20	Aug 85	529	0.124	65.60
21	Sep 85	98	0.075	7.35
		2624	1.608	241.95

Y ave. = 131.20 N= 20.00
X ave. = 0.08
XY = 241.95
Sy = 149.985
Sx = 0.028

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.392

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.088	3.87
2	Nov 83	102	0.091	9.28
3	~~Mar 84~~ Dec 83	8	0.068	0.54
4	Apr 84	47	0.084	3.95
5	May 84	172	0.083	14.28
6	Jun 84	20	0.055	1.10
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.082	34.85
9	Sep 84	84	0.760	63.84
10	Oct 84	28	0.690	19.32
11	Nov 84	90	0.102	9.18
12	Dec 84	138	0.034	4.69
13	Jan 85	118	0.031	3.66
14	Feb 85	14	0.079	1.11
15	Mar 85	320	0.108	34.56
16	Apr 85	54	0.088	4.75
17	May 85	20	0.109	2.18
18	Jun 85	51	0.016	0.82
19	Jul 85	339	0.047	15.93
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.066	6.47
		2762	2.911	309.25

Y ave. = 131.52 N= 21.00
X ave. = 0.14
XY = 309.25
Sy = 146.195
Sx = 0.197

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.128

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.088	3.87
2	Nov 83	102	0.091	9.28
3	~~Mar 84~~ Dec 83	8	0.078	0.62
4	Apr 84	47	0.084	3.95
5	May 84	172	0.083	14.28
6	Jun 84	20	0.042	0.84
7	Jul 84	61	0.102	6.22
8	Aug 84	425	0.132	56.10
9	Sep 84	84	0.780	65.52
10	Oct 84	28	0.071	1.99
11	Nov 84	90	0.105	9.45
12	Dec 84	138	0.033	4.55
13	Jan 85	118	0.033	3.89
14	Feb 85	14	0.084	1.18
15	Mar 85	320	0.119	38.08
16	Apr 85	54	0.088	4.75
17	May 85	20	0.109	2.18
18	Jun 85	51	0.020	1.02
19	Jul 85	339	0.051	17.29
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.067	6.57
		2762	2.390	320.40

Y ave. = 131.52 N= 21.00
X ave. = 0.11
XY = 320.40
Sy = 146.195
Sx = 0.156

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.013

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.079	3.48
2	Nov 83	102	0.094	9.59
3	~~Mar 84~~ Dec 83	8	0.075	0.60
4	Apr 84	47	0.086	4.04
5	May 84	172	0.085	14.62
6	Jun 84	20	0.048	0.96
7	Jul 84	61	0.097	5.92
8	Aug 84	425	0.095	40.38
9	Sep 84	84	0.078	6.55
10	Oct 84	28	0.069	1.93
11	Nov 84	90	0.105	9.45
12	Dec 84	138	0.033	4.55
13	Jan 85	118	0.033	3.89
14	Feb 85	14	0.082	1.15
15	Mar 85	320	0.094	30.08
16	Apr 85	54	0.090	4.86
17	May 85	20	0.109	2.18
18	Jun 85	51	0.021	1.07
19	Jul 85	339	0.044	14.92
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.064	6.27
		2762	1.611	235.26

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 235.26
Sy = 146.195
Sx = 0.028

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.288

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.084	3.70
2	Nov 83	102	0.091	9.28
3	~~Mar 84~~ Dec 83	8	0.078	0.62
4	Apr 84	47	0.088	4.14
5	May 84	172	0.083	14.28
6	Jun 84	20	0.046	0.92
7	Jul 84	61	0.098	5.98
8	Aug 84	425	0.106	45.05
9	Sep 84	84	0.760	63.84
10	Oct 84	28	0.064	1.79
11	Nov 84	90	0.105	9.45
12	Dec 84	138	0.027	3.73
13	Jan 85	118	0.027	3.19
14	Feb 85	14	0.084	1.18
15	Mar 85	320	0.095	30.40
16	Apr 85	54	0.090	4.86
17	May 85	20	0.107	2.14
18	Jun 85	51	0.059	3.01
19	Jul 85	339	0.046	15.59
20	Aug 85	529	0.131	69.30
21	Sep 85	98	0.069	6.76
		2762	2.338	299.20

Y ave. = 131.52 N= 21.00
X ave. = 0.11
XY = 299.20
Sy = 146.195
Sx = 0.151

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.019

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) CADMIUM	Xi * Yi
1	Oct 83	44	0.091	4.00
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.081	0.65
4	Apr 84	47	0.081	3.81
5	May 84	172	0.083	14.28
6	Jun 84	20	0.048	0.96
7	Jul 84	61	0.098	5.98
8	Aug 84	425	0.114	48.45
9	Sep 84	84	0.760	63.84
10	Oct 84	28	0.069	1.93
11	Nov 84	90	0.107	9.63
12	Dec 84	138	0.033	4.55
13	Jan 85	118	0.033	3.89
14	Feb 85	14	0.082	1.15
15	Mar 85	320	0.083	26.56
16	Apr 85	54	0.093	5.02
17	May 85	20	0.107	2.14
18	Jun 85	51	0.019	0.97
19	Jul 85	339	0.047	15.93
20	Aug 85	529	0.119	62.95
21	Sep 85	98	0.071	6.96
		2762	2.309	292.83

Y ave. = 131.52 N= 21.00
X ave. = 0.11
XY = 292.83
Sy = 146.195
Sx = 0.151

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.025

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83	8	0.010	0.08
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	10.000	510.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		59	10.010	510.08

Y ave. = 29.50 N= 2.00
X ave. = 5.01
XY = 510.08
Sy = 30.406
Sx = 7.064

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	7.000	357.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		51	7.000	357.00

Y ave. = 51.00 N= 1.00
X ave. = 7.00
XY = 357.00
Sy = ??
Sx = ??

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	8.000	816.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	10.000	510.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		153	18.000	1326.00

Y ave. = 76.50 N= 2.00
X ave. = 9.00
XY = 1326.00
Sy = 36.062
Sx = 1.414

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	7.000	329.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	13.000	663.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		98	20.000	992.00

Y ave. = 49.00 N= 2.00
X ave. = 10.00
XY = 992.00
Sy = 2.828
Sx = 4.243

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83	8	2.000	16.00
4	Apr 84	47	2.000	94.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	15.000	765.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		106	19.000	875.00

Y ave. = 35.33 N= 3.00
X ave. = 6.33
XY = 875.00
Sy = 23.756
Sx = 7.506

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.571

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83	8	2.000	16.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	7.000	357.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		59	9.000	373.00

Y ave. = 29.50 N= 2.00
X ave. = 4.50
XY = 373.00
Sy = 30.406
Sx = 3.536

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	2.000	94.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	7.000	357.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		98	9.000	451.00

Y ave. = 49.00 N= 2.00
X ave. = 4.50
XY = 451.00
Sy = 2.828
Sx = 3.536

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	3.000	141.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	11.000	561.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		98	14.000	702.00

Y ave. = 49.00 N= 2.00
X ave. = 7.00
XY = 702.00
Sy = 2.828
Sx = 5.657

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	5.000	235.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	13.000	663.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		98	18.000	898.00

Y ave. = 49.00 N= 2.00
X ave. = 9.00
XY = 898.00
Sy = 2.828
Sx = 5.657

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, HEXAVALENT	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	7.000	329.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	10.000	510.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		98	17.000	839.00

Y ave. = 49.00 N= 2.00
X ave. = 8.50
XY = 839.00
Sy = 2.828
Sx = 2.121

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.090	3.96
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84			0.00
5	May 84	172	0.060	10.32
6	Jun 84			0.00
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.080	1.12
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.050	2.70
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.040	3.92
		2557	1.050	134.96

Y ave. = 142.06 N= 18.00
X ave. = 0.06
XY = 134.96
Sy = 154.509
Sx = 0.023

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.237

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.040	0.32
4	Apr 84			0.00
5	May 84	172	0.060	10.32
6	Jun 84	20	0.050	1.00
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.090	1.26
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.050	2.70
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2577	1.100	152.37

Y ave. = 135.63 N= 19.00
X ave. = 0.06
XY = 152.37
Sy = 152.744
Sx = 0.022

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.052

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.080	3.52
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84			0.00
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.040	2.44
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.430	12.04
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.080	1.12
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.040	2.16
17	May 85	20	0.100	2.00
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.040	21.16
21	Sep 85			0.00
		2479	1.380	143.09

Y ave. = 137.72 N= 18.00
X ave. = 0.08
XY = 143.09
Sy = 156.893
Sx = 0.091

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.194

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84			0.00
5	May 84	172	0.060	10.32
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.090	1.26
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.060	3.24
17	May 85	20	0.120	2.40
18	Jun 85	51	0.040	2.04
19	Jul 85			0.00
20	Aug 85	529	0.040	21.16
21	Sep 85			0.00
		2140	1.020	123.02

Y ave. = 125.88 N= 17.00
X ave. = 0.06
XY = 123.02
Sy = 153.208
Sx = 0.023

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.094

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.020	0.16
4	Apr 84			0.00
5	May 84	172	0.050	8.60
6	Jun 84	20	0.060	1.20
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85	118	0.060	7.08
14	Feb 85	14	0.090	1.26
15	Mar 85	320	0.090	28.80
16	Apr 85	54	0.060	3.24
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.040	21.16
21	Sep 85			0.00
		2479	1.020	128.14

Y ave. = 137.72 N= 18.00
X ave. = 0.06
XY = 128.14
Sy = 156.893
Sx = 0.022

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.208

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.030	0.24
4	Apr 84			0.00
5	May 84	172	0.060	10.32
6	Jun 84	20	0.060	1.20
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.060	7.08
14	Feb 85	14	0.090	1.26
15	Mar 85	320	0.090	28.80
16	Apr 85	54	0.060	3.24
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85			0.00
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.060	5.88
		2376	1.100	128.11

Y ave. = 125.05 N= 19.00
X ave. = 0.06
XY = 128.11
Sy = 144.621
Sx = 0.021

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = -0.169

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.050	2.20
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84			0.00
5	May 84	172	0.050	8.60
6	Jun 84			0.00
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.060	25.50
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.060	5.40
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.060	7.08
14	Feb 85	14	0.100	1.40
15	Mar 85	320	0.090	28.80
16	Apr 85	54	0.050	2.70
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85			0.00
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.040	3.92
		2356	1.040	131.92

Y ave. = 130.89 N= 18.00
X ave. = 0.06
XY = 131.92
Sy = 146.493
Sx = 0.022

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.076

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.030	0.24
4	Apr 84			0.00
5	May 84	172	0.050	8.60
6	Jun 84			0.00
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.060	5.40
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.090	1.26
15	Mar 85	320	0.070	22.40
16	Apr 85	54	0.060	3.24
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85			0.00
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.040	3.92
		2356	0.990	116.80

Y ave. = 130.89 N= 18.00
X ave. = 0.06
XY = 116.80
Sy = 146.493
Sx = 0.020

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.252

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.030	0.24
4	Apr 84			0.00
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.040	17.00
9	Sep 84			0.00
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.100	1.40
15	Mar 85	320	0.070	22.40
16	Apr 85	54	0.060	3.24
17	May 85	20	0.110	2.20
18	Jun 85			0.00
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.040	21.16
21	Sep 85			0.00
		2482	0.960	121.69

Y ave. = 146.00 N= 17.00
X ave. = 0.06
XY = 121.69
Sy = 159.469
Sx = 0.022

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = -0.328

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) CHROMIUM, TOTAL	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84			0.00
5	May 84	172	0.060	10.32
6	Jun 84			0.00
7	Jul 84	61	0.070	4.27
8	Aug 84	425	0.050	21.25
9	Sep 84			0.00
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.060	7.08
14	Feb 85	14	0.100	1.40
15	Mar 85	320	0.070	22.40
16	Apr 85	54	0.060	3.24
17	May 85	20	0.110	2.20
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.040	3.92
		2611	1.040	136.25

Y ave. = 145.06 N= 18.00
X ave. = 0.06
XY = 136.25
Sy = 153.838
Sx = 0.020

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.273

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	21.000	2756.00

Y ave. = 133.60 N= 20.00
X ave. = 1.05
XY = 2756.00
Sy = 149.675
Sx = 0.224

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.078

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	3.000	252.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	22.000	2840.00

Y ave. = 133.60 N= 20.00
X ave. = 1.10
XY = 2840.00
Sy = 149.675
Sx = 0.447

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.078

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	2.000	56.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2534	21.000	2646.00

Y ave. = 133.37 N= 19.00
X ave. = 1.11
XY = 2646.00
Sy = 153.773
Sx = 0.315

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.177

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2534	20.000	2618.00

Y ave. = 133.37 N= 19.00
X ave. = 1.05
XY = 2618.00
Sy = 153.773
Sx = 0.229

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.078

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	1.000	84.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2534	19.000	2534.00

Y ave. = 133.37 N= 19.00
X ave. = 1.00
XY = 2534.00
Sy = 153.773
Sx = 0.000

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	1.000	84.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	20.000	2672.00

Y ave. = 133.60 N= 20.00
X ave. = 1.00
XY = 2672.00
Sy = 149.675
Sx = 0.000

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	21.000	2756.00

Y ave. = 133.60 N= 20.00
X ave. = 1.05
XY = 2756.00
Sy = 149.675
Sx = 0.224

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.078

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	1.000	84.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	20.000	2672.00

Y ave. = 133.60 N= 20.00
X ave. = 1.00
XY = 2672.00
Sy = 149.675
Sx = 0.000

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	21.000	2756.00

Y ave. = 133.60 N= 20.00
X ave. = 1.05
XY = 2756.00
Sy = 149.675
Sx = 0.224

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.078

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) COLOR	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.000	8.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	1.000	61.00
8	Aug 84	425	1.000	425.00
9	Sep 84	84	1.000	84.00
10	Oct 84	28	1.000	28.00
11	Nov 84			0.00
12	Dec 84	138	1.000	138.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	1.000	14.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	1.000	54.00
17	May 85	20	1.000	20.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	1.000	98.00
		2672	20.000	2672.00

Y ave. = 133.60 N= 20.00
X ave. = 1.00
XY = 2672.00
Sy = 149.675
Sx = 0.000

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.080	3.52
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.090	0.72
4	Apr 84	47	0.070	3.29
5	May 84	172	0.080	13.76
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.080	2.24
11	Nov 84	90	0.060	5.40
12	Dec 84	138	0.070	9.66
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.120	1.68
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.240	4.80
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.160	84.64
21	Sep 85	98	0.080	7.84
		2762	1.860	255.18

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 255.18
Sy = 146.195
Sx = 0.044

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.083

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.310	31.62
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.070	3.29
5	May 84	172	0.070	12.04
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.080	2.24
11	Nov 84	90	0.060	5.40
12	Dec 84	138	0.060	8.28
13	Jan 85	118	0.050	5.90
14	Feb 85	14	0.110	1.54
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.160	3.20
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.160	84.64
21	Sep 85	98	0.070	6.86
		2762	1.910	270.49

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 270.49
Sy = 146.195
Sx = 0.059

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.111

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.080	3.52
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.070	3.29
5	May 84	172	0.070	12.04
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.080	4.88
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.080	2.24
11	Nov 84	90	0.050	4.50
12	Dec 84			0.00
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.100	1.40
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.030	1.62
17	May 85	20	0.190	3.80
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.080	27.12
20	Aug 85	529	0.150	79.35
21	Sep 85	98	0.090	8.82
		2624	1.700	247.98

Y ave. = 131.20 N= 20.00
X ave. = 0.09
XY = 247.98
Sy = 149.985
Sx = 0.035

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.251

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.100	10.20
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.080	1.60
7	Jul 84	61	0.100	6.10
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.090	2.52
11	Nov 84	90	0.070	6.30
12	Dec 84			0.00
13	Jan 85	118	0.080	9.44
14	Feb 85	14	0.110	1.54
15	Mar 85	320	0.040	12.80
16	Apr 85	54	0.030	1.62
17	May 85	20	0.140	2.80
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.080	27.12
20	Aug 85	529	0.160	84.64
21	Sep 85	98	0.090	8.82
		2624	1.660	237.68

Y ave. = 131.20 N= 20.00
X ave. = 0.08
XY = 237.68
Sy = 149.985
Sx = 0.031

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.225

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.080	3.52
2	Nov 83	102	0.160	16.32
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.080	3.76
5	May 84	172	0.070	12.04
6	Jun 84	20	0.080	1.60
7	Jul 84	61	0.080	4.88
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.080	2.24
11	Nov 84	90	0.060	5.40
12	Dec 84			0.00
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.120	1.68
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.130	2.60
18	Jun 85	51	0.040	2.04
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.150	79.35
21	Sep 85	98	0.090	8.82
		2624	1.720	245.66

Y ave. = 131.20 N= 20.00
X ave. = 0.09
XY = 245.66
Sy = 149.985
Sx = 0.032

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.218

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.070	1.40
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.060	1.68
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.110	15.18
13	Jan 85	118	0.090	10.62
14	Feb 85	14	0.120	1.68
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.140	2.80
18	Jun 85	51	0.070	3.57
19	Jul 85	339	0.080	27.12
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.110	10.78
		2762	1.740	245.26

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 245.26
Sy = 146.195
Sx = 0.028

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.198

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.100	10.20
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.070	1.40
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.060	1.68
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.080	11.04
13	Jan 85	118	0.090	10.62
14	Feb 85	14	0.130	1.82
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.140	2.80
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.060	20.34
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.120	11.76
		2762	1.710	234.91

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 234.91
Sy = 146.195
Sx = 0.029

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.120

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.160	16.32
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.060	1.20
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.060	1.68
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.080	11.04
13	Jan 85	118	0.090	10.62
14	Feb 85	14	0.130	1.82
15	Mar 85	320	0.080	25.60
16	Apr 85	54	0.030	1.62
17	May 85	20	0.130	2.60
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.230	121.67
21	Sep 85	98	0.130	12.74
		2762	1.820	287.91

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 287.91
Sy = 146.195
Sx = 0.047

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.357

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.070	1.40
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.090	7.56
10	Oct 84	28	0.070	1.96
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.080	11.04
13	Jan 85	118	0.080	9.44
14	Feb 85	14	0.120	1.68
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.030	1.62
17	May 85	20	0.120	2.40
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.080	27.12
20	Aug 85	529	0.220	115.38
21	Sep 85	98	0.110	10.78
		2762	1.740	273.19

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 273.19
Sy = 146.195
Sx = 0.040

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.380

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) COPPER	Xi * Yi
1	Oct 83	44	0.070	3.08
2	Nov 83	102	0.150	15.30
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.060	2.82
5	May 84	172	0.070	12.04
6	Jun 84	20	0.070	1.40
7	Jul 84	61	0.090	5.49
8	Aug 84	425	0.050	21.25
9	Sep 84	84	0.080	6.72
10	Oct 84	28	0.070	1.96
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.080	11.04
13	Jan 85	118	0.110	12.98
14	Feb 85	14	0.130	1.82
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.030	1.62
17	May 85	20	0.140	2.80
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.130	68.77
21	Sep 85	98	0.100	9.80
		2762	1.730	228.61

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 228.61
Sy = 146.195
Sx = 0.033

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.011

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.530	4.24
4	Apr 84	47	0.530	24.91
5	May 84	172	0.510	87.72
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.550	33.55
8	Aug 84	425	0.520	221.00
9	Sep 84	84	0.530	44.52
10	Oct 84	28	0.530	14.84
11	Nov 84	90	0.600	54.00
12	Dec 84	138	0.700	96.60
13	Jan 85	118	0.520	61.36
14	Feb 85	14	0.510	7.14
15	Mar 85	320	0.560	179.20
16	Apr 85	54	0.580	31.32
17	May 85	20	0.600	12.00
18	Jun 85	51	0.570	29.07
19	Jul 85	339	0.590	200.01
20	Aug 85	529	0.610	322.69
21	Sep 85	98	0.550	53.90
		2762	11.510	1553.69

Y ave. = 131.52 N= 21.00
X ave. = 0.55
XY = 1553.69
Sy = 146.195
Sx = 0.057

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.239

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.530	24.91
5	May 84	172	0.500	86.00
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.550	33.55
8	Aug 84	425	0.520	221.00
9	Sep 84	84	0.550	46.20
10	Oct 84	28	0.530	14.84
11	Nov 84	90	0.610	54.90
12	Dec 84	138	0.920	126.96
13	Jan 85	118	0.540	63.72
14	Feb 85	14	0.510	7.14
15	Mar 85	320	0.570	182.40
16	Apr 85	54	0.620	33.48
17	May 85			0.00
18	Jun 85	51	0.590	30.09
19	Jul 85	339	0.600	203.40
20	Aug 85	529	0.600	317.40
21	Sep 85	98	0.570	55.86
		2742	11.350	1582.43

Y ave. = 137.10 N= 20.00
X ave. = 0.57
XY = 1582.43
Sy = 147.684
Sx = 0.098

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.096

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.560	26.32
5	May 84	172	0.510	87.72
6	Jun 84	20	0.560	11.20
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.520	221.00
9	Sep 84	84	0.550	46.20
10	Oct 84	28	0.560	15.68
11	Nov 84	90	0.610	54.90
12	Dec 84			0.00
13	Jan 85	118	0.550	64.90
14	Feb 85	14	0.570	7.98
15	Mar 85	320	0.570	182.40
16	Apr 85	54	0.620	33.48
17	May 85			0.00
18	Jun 85	51	0.590	30.09
19	Jul 85	339	0.620	210.18
20	Aug 85	529	0.630	333.27
21	Sep 85	98	0.570	55.86
		2604	10.610	1482.68

Y ave. = 137.05 N= 19.00
X ave. = 0.56
XY = 1482.68
Sy = 151.731
Sx = 0.055

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.190

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.560	26.32
5	May 84	172	0.510	87.72
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.530	44.52
10	Oct 84	28	0.550	15.40
11	Nov 84	90	0.610	54.90
12	Dec 84			0.00
13	Jan 85	118	0.550	64.90
14	Feb 85			0.00
15	Mar 85	320	0.590	188.80
16	Apr 85	54	0.620	33.48
17	May 85	20	0.630	12.60
18	Jun 85	51	0.630	32.13
19	Jul 85	339	0.620	210.18
20	Aug 85	529	0.630	333.27
21	Sep 85	98	0.580	56.84
		2610	10.700	1498.61

Y ave. = 137.37 N= 19.00
X ave. = 0.56
XY = 1498.61
Sy = 151.467
Sx = 0.060

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.176

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.570	4.56
4	Apr 84	47	0.560	26.32
5	May 84	172	0.500	86.00
6	Jun 84	20	0.560	11.20
7	Jul 84	61	0.500	30.50
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.580	48.72
10	Oct 84	28	0.550	15.40
11	Nov 84	90	0.610	54.90
12	Dec 84			0.00
13	Jan 85	118	0.580	68.44
14	Feb 85	14	0.540	7.56
15	Mar 85	320	0.590	188.80
16	Apr 85	54	0.640	34.56
17	May 85	20	0.640	12.80
18	Jun 85	51	0.610	31.11
19	Jul 85	339	0.640	216.96
20	Aug 85	529	0.590	312.11
21	Sep 85	98	0.580	56.84
		2624	11.250	1496.85

Y ave. = 131.20 N= 20.00
X ave. = 0.56
XY = 1496.85
Sy = 149.985
Sx = 0.058

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.125

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.560	26.32
5	May 84	172	0.520	89.44
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.550	46.20
10	Oct 84	28	0.530	14.84
11	Nov 84	90	0.610	54.90
12	Dec 84	138	0.720	99.36
13	Jan 85	118	0.570	67.26
14	Feb 85	14	0.570	7.98
15	Mar 85	320	0.520	166.40
16	Apr 85	54	0.640	34.56
17	May 85	20	0.660	13.20
18	Jun 85	51	0.610	31.11
19	Jul 85	339	0.640	216.96
20	Aug 85	529	0.600	317.40
21	Sep 85	98	0.580	56.84
		2762	11.970	1580.32

Y ave. = 131.52 N= 21.00
X ave. = 0.57
XY = 1580.32
Sy = 146.195
Sx = 0.068

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.030

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.560	26.32
5	May 84	172	0.530	91.16
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.550	46.20
10	Oct 84	28	0.540	15.12
11	Nov 84	90	0.600	54.00
12	Dec 84	138	0.700	96.60
13	Jan 85	118	0.580	68.44
14	Feb 85	14	0.560	7.84
15	Mar 85	320	0.570	182.40
16	Apr 85	54	0.630	34.02
17	May 85	20	0.640	12.80
18	Jun 85	51	0.610	31.11
19	Jul 85	339	0.640	216.96
20	Aug 85	529	0.670	354.43
21	Sep 85	98	0.550	53.90
		2762	12.020	1628.85

Y ave. = 131.52 N= 21.00
X ave. = 0.57
XY = 1628.85
Sy = 146.195
Sx = 0.066

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.247

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.620	4.96
4	Apr 84	47	0.560	26.32
5	May 84	172	0.520	89.44
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.550	33.55
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.550	46.20
10	Oct 84	28	0.560	15.68
11	Nov 84	90	0.610	54.90
12	Dec 84	138	0.710	97.98
13	Jan 85	118	0.580	68.44
14	Feb 85	14	0.580	8.12
15	Mar 85	320	0.570	182.40
16	Apr 85	54	0.640	34.56
17	May 85	20	0.660	13.20
18	Jun 85	51	0.640	32.64
19	Jul 85	339	0.640	216.96
20	Aug 85	529	0.600	317.40
21	Sep 85	98	0.550	53.90
		2762	12.090	1597.52

Y ave. = 131.52 N= 21.00
X ave. = 0.58
XY = 1597.52
Sy = 146.195
Sx = 0.066

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.038

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.530	4.24
4	Apr 84	47	0.580	27.26
5	May 84	172	0.520	89.44
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.560	47.04
10	Oct 84	28	0.560	15.68
11	Nov 84	90	0.600	54.00
12	Dec 84	138	0.710	97.98
13	Jan 85	118	0.580	68.44
14	Feb 85	14	0.580	8.12
15	Mar 85	320	0.590	188.80
16	Apr 85	54	0.640	34.56
17	May 85	20	0.910	18.20
18	Jun 85	51	0.640	32.64
19	Jul 85	339	0.620	210.18
20	Aug 85	529	0.580	306.82
21	Sep 85	98	0.550	53.90
		2762	12.220	1589.89

Y ave. = 131.52 N= 21.00
X ave. = 0.58
XY = 1589.89
Sy = 146.195
Sx = 0.097

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.061

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) FLUORIDE	Xi * Yi
1	Oct 83	44	0.430	18.92
2	Nov 83	102	0.450	45.90
3	~~Mar 84~~ Dec 83	8	0.570	4.56
4	Apr 84	47	0.580	27.26
5	May 84	172	0.520	89.44
6	Jun 84	20	0.540	10.80
7	Jul 84	61	0.550	33.55
8	Aug 84	425	0.530	225.25
9	Sep 84	84	0.560	47.04
10	Oct 84	28	0.560	15.68
11	Nov 84	90	0.610	54.90
12	Dec 84	138	0.710	97.98
13	Jan 85	118	0.570	67.26
14	Feb 85	14	0.580	8.12
15	Mar 85	320	0.570	182.40
16	Apr 85	54	0.630	34.02
17	May 85	20	0.770	15.40
18	Jun 85	51	0.640	32.64
19	Jul 85	339	0.610	206.79
20	Aug 85	529	0.550	290.95
21	Sep 85	98	0.550	53.90
		2762	12.080	1562.76

Y ave. = 131.52 N= 21.00
X ave. = 0.58
XY = 1562.76
Sy = 146.195
Sx = 0.075

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.119

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.530	23.32
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.760	35.72
5	May 84	172	0.520	89.44
6	Jun 84	20	0.450	9.00
7	Jul 84	61	0.530	32.33
8	Aug 84	425	1.230	522.75
9	Sep 84	84	0.370	31.08
10	Oct 84	28	0.460	12.88
11	Nov 84	90	0.330	29.70
12	Dec 84	138	0.270	37.26
13	Jan 85	118	0.220	25.96
14	Feb 85	14	0.610	8.54
15	Mar 85	320	0.540	172.80
16	Apr 85	54	0.550	29.70
17	May 85	20	0.470	9.40
18	Jun 85	51	0.350	17.85
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.280	148.12
21	Sep 85	98	0.190	18.62
		2762	9.780	1401.68

Y ave. = 131.52 N= 21.00
X ave. = 0.47
XY = 1401.68
Sy = 146.195
Sx = 0.226

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.174

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.420	18.48
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.280	2.24
4	Apr 84	47	0.760	35.72
5	May 84	172	0.510	87.72
6	Jun 84	20	0.430	8.60
7	Jul 84	61	0.530	32.33
8	Aug 84	425	1.180	501.50
9	Sep 84	84	0.370	31.08
10	Oct 84	28	0.460	12.88
11	Nov 84	90	0.350	31.50
12	Dec 84	138	0.230	31.74
13	Jan 85	118	0.210	24.78
14	Feb 85	14	0.630	8.82
15	Mar 85	320	0.510	163.20
16	Apr 85	54	0.620	33.48
17	May 85	20	0.450	9.00
18	Jun 85	51	0.340	17.34
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.300	158.70
21	Sep 85	98	0.180	17.64
		2762	9.570	1373.36

Y ave. = 131.52 N= 21.00
X ave. = 0.46
XY = 1373.36
Sy = 146.195
Sx = 0.224

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.175

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.440	19.36
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.720	33.84
5	May 84	172	0.470	80.84
6	Jun 84	20	0.430	8.60
7	Jul 84	61	0.510	31.11
8	Aug 84	425	1.190	505.75
9	Sep 84	84	0.360	30.24
10	Oct 84	28	0.430	12.04
11	Nov 84	90	0.330	29.70
12	Dec 84			0.00
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.650	9.10
15	Mar 85	320	0.510	163.20
16	Apr 85	54	0.590	31.86
17	May 85	20	0.490	9.80
18	Jun 85	51	0.330	16.83
19	Jul 85	339	0.280	94.92
20	Aug 85	529	0.300	158.70
21	Sep 85	98	0.160	15.68
		2624	9.390	1348.23

Y ave. = 131.20 N= 20.00
X ave. = 0.47
XY = 1348.23
Sy = 149.985
Sx = 0.217

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.188

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.420	18.48
2	Nov 83	102	0.550	56.10
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.720	33.84
5	May 84	172	0.480	82.56
6	Jun 84	20	0.420	8.40
7	Jul 84	61	0.520	31.72
8	Aug 84	425	1.120	476.00
9	Sep 84	84	0.350	29.40
10	Oct 84	28	0.410	11.48
11	Nov 84	90	0.340	30.60
12	Dec 84			0.00
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.240	3.36
15	Mar 85	320	0.500	160.00
16	Apr 85	54	0.660	35.64
17	May 85	20	0.440	8.80
18	Jun 85	51	0.320	16.32
19	Jul 85	339	0.300	101.70
20	Aug 85	529	0.280	148.12
21	Sep 85	98	0.190	18.62
		2624	8.920	1312.72

Y ave. = 131.20 N= 20.00
X ave. = 0.45
XY = 1312.72
Sy = 149.985
Sx = 0.208

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.241

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.410	18.04
2	Nov 83	102	0.510	52.02
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.740	34.78
5	May 84	172	0.470	80.84
6	Jun 84	20	0.420	8.40
7	Jul 84	61	0.510	31.11
8	Aug 84	425	0.980	416.50
9	Sep 84	84	0.350	29.40
10	Oct 84	28	0.420	11.76
11	Nov 84	90	0.320	28.80
12	Dec 84			0.00
13	Jan 85	118	0.310	36.58
14	Feb 85	14	0.600	8.40
15	Mar 85	320	0.510	163.20
16	Apr 85	54	0.450	24.30
17	May 85	20	0.460	9.20
18	Jun 85	51	0.310	15.81
19	Jul 85	339	0.290	98.31
20	Aug 85	529	0.300	158.70
21	Sep 85	98	0.190	18.62
		2624	8.880	1247.41

Y ave. = 131.20 N= 20.00
X ave. = 0.44
XY = 1247.41
Sy = 149.985
Sx = 0.177

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.163

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.420	18.48
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.320	2.56
4	Apr 84	47	0.740	34.78
5	May 84	172	0.480	82.56
6	Jun 84	20	0.420	8.40
7	Jul 84	61	0.530	32.33
8	Aug 84	425	1.100	467.50
9	Sep 84	84	0.340	28.56
10	Oct 84	28	0.410	11.48
11	Nov 84	90	0.360	32.40
12	Dec 84	138	0.320	44.16
13	Jan 85	118	0.320	37.76
14	Feb 85	14	0.610	8.54
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.520	28.08
17	May 85	20	0.480	9.60
18	Jun 85	51	0.340	17.34
19	Jul 85	339	0.260	88.14
20	Aug 85	529	0.300	158.70
21	Sep 85	98	0.170	16.66
		2762	9.430	1331.47

Y ave. = 131.52 N= 21.00
X ave. = 0.45
XY = 1331.47
Sy = 146.195
Sx = 0.197

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.159

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.370	16.28
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.700	32.90
5	May 84	172	0.510	87.72
6	Jun 84	20	0.430	8.60
7	Jul 84	61	0.540	32.94
8	Aug 84	425	1.200	510.00
9	Sep 84	84	0.350	29.40
10	Oct 84	28	0.410	11.48
11	Nov 84	90	0.360	32.40
12	Dec 84	138	0.320	44.16
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.590	8.26
15	Mar 85	320	0.520	166.40
16	Apr 85	54	0.700	37.80
17	May 85	20	0.440	8.80
18	Jun 85	51	0.340	17.34
19	Jul 85	339	0.280	94.92
20	Aug 85	529	0.290	153.41
21	Sep 85	98	0.170	16.66
		2762	9.700	1404.09

Y ave. = 131.52 N= 21.00
X ave. = 0.46
XY = 1404.09
Sy = 146.195
Sx = 0.217

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.202

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.410	18.04
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.320	2.56
4	Apr 84	47	0.700	32.90
5	May 84	172	0.450	77.40
6	Jun 84	20	0.430	8.60
7	Jul 84	61	0.500	30.50
8	Aug 84	425	0.790	335.75
9	Sep 84	84	0.340	28.56
10	Oct 84	28	0.420	11.76
11	Nov 84	90	0.330	29.70
12	Dec 84	138	0.310	42.78
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.660	9.24
15	Mar 85	320	0.370	118.40
16	Apr 85	54	0.520	28.08
17	May 85	20	0.450	9.00
18	Jun 85	51	0.310	15.81
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.290	153.41
21	Sep 85	98	0.150	14.70
		2762	8.870	1150.70

Y ave. = 131.52 N= 21.00
X ave. = 0.42
XY = 1150.70
Sy = 146.195
Sx = 0.154

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.035

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.410	18.04
2	Nov 83	102	0.510	52.02
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.720	33.84
5	May 84	172	0.470	80.84
6	Jun 84	20	0.400	8.00
7	Jul 84	61	0.510	31.11
8	Aug 84	425	0.860	365.50
9	Sep 84	84	0.340	28.56
10	Oct 84	28	0.410	11.48
11	Nov 84	90	0.330	29.70
12	Dec 84	138	0.310	42.78
13	Jan 85	118	0.270	31.86
14	Feb 85	14	0.580	8.12
15	Mar 85	320	0.320	102.40
16	Apr 85	54	0.620	33.48
17	May 85	20	0.430	8.60
18	Jun 85	51	0.310	15.81
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.280	148.12
21	Sep 85	98	0.130	12.74
		2762	8.810	1157.17

Y ave. = 131.52 N= 21.00
X ave. = 0.42
XY = 1157.17
Sy = 146.195
Sx = 0.169

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.003

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) IRON	Xi * Yi
1	Oct 83	44	0.380	16.72
2	Nov 83	102	0.510	52.02
3	~~Mar 84~~ Dec 83	8	0.330	2.64
4	Apr 84	47	0.720	33.84
5	May 84	172	0.480	82.56
6	Jun 84	20	0.420	8.40
7	Jul 84	61	0.480	29.28
8	Aug 84	425	0.950	403.75
9	Sep 84	84	0.340	28.56
10	Oct 84	28	0.380	10.64
11	Nov 84	90	0.320	28.80
12	Dec 84	138	0.320	44.16
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.610	8.54
15	Mar 85	320	0.310	99.20
16	Apr 85	54	0.660	35.64
17	May 85	20	0.420	8.40
18	Jun 85	51	0.330	16.83
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.300	158.70
21	Sep 85	98	0.110	10.78
		2762	8.970	1209.93

Y ave. = 131.52 N= 21.00
X ave. = 0.43
XY = 1209.93
Sy = 146.195
Sx = 0.184

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.056

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.550	24.20
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.430	3.44
4	Apr 84	47	0.370	17.39
5	May 84	172	0.530	91.16
6	Jun 84	20	0.420	8.40
7	Jul 84	61	0.580	35.38
8	Aug 84	425	0.540	229.50
9	Sep 84	84	0.360	30.24
10	Oct 84	28	0.330	9.24
11	Nov 84	90	0.290	26.10
12	Dec 84	138	0.210	28.98
13	Jan 85	118	0.250	29.50
14	Feb 85	14	0.590	8.26
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.660	35.64
17	May 85	20	0.380	7.60
18	Jun 85	51	0.760	38.76
19	Jul 85	339	0.370	125.43
20	Aug 85	529	0.460	243.34
21	Sep 85	98	0.560	54.88
		2762	9.630	1250.88

Y ave. = 131.52 N= 21.00
X ave. = 0.46
XY = 1250.88
Sy = 146.195
Sx = 0.138

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.039

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.490	21.56
2	Nov 83	102	0.500	51.00
3	~~Mar 84~~ Dec 83	8	0.380	3.04
4	Apr 84	47	0.350	16.45
5	May 84	172	0.510	87.72
6	Jun 84	20	0.500	10.00
7	Jul 84	61	0.530	32.33
8	Aug 84	425	0.540	229.50
9	Sep 84	84	0.400	33.60
10	Oct 84	28	0.350	9.80
11	Nov 84	90	0.290	26.10
12	Dec 84	138	0.170	23.46
13	Jan 85	118	0.190	22.42
14	Feb 85	14	0.520	7.28
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.690	37.26
17	May 85	20	0.380	7.60
18	Jun 85	51	0.770	39.27
19	Jul 85	339	0.300	101.70
20	Aug 85	529	0.390	206.31
21	Sep 85	98	0.620	60.76
		2762	9.340	1177.56

Y ave. = 131.52 N= 21.00
X ave. = 0.44
XY = 1177.56
Sy = 146.195
Sx = 0.150

$$\text{Correlation Factor} = \frac{\text{Summmation } (X_i Y_i) - n\, X_{ave}\, Y_{ave}}{S_x\, S_y\, (n-1)}$$

Correlation Factor = -0.116

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.510	22.44
2	Nov 83	102	0.500	51.00
3	~~Mar 84~~ Dec 83	8	0.470	3.76
4	Apr 84	47	0.350	16.45
5	May 84	172	0.470	80.84
6	Jun 84	20	0.520	10.40
7	Jul 84	61	0.510	31.11
8	Aug 84	425	0.560	238.00
9	Sep 84	84	0.380	31.92
10	Oct 84	28	0.330	9.24
11	Nov 84	90	0.290	26.10
12	Dec 84			0.00
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.550	7.70
15	Mar 85	320	0.500	160.00
16	Apr 85	54	0.730	39.42
17	May 85	20	0.270	5.40
18	Jun 85	51	0.790	40.29
19	Jul 85	339	0.300	101.70
20	Aug 85	529	0.370	195.73
21	Sep 85	98	0.560	54.88
		2624	9.290	1165.32

Y ave. = 131.20 N= 20.00
X ave. = 0.46
XY = 1165.32
Sy = 149.985
Sx = 0.140

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.134

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.550	24.20
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.400	3.20
4	Apr 84	47	0.350	16.45
5	May 84	172	0.530	91.16
6	Jun 84	20	0.450	9.00
7	Jul 84	61	0.520	31.72
8	Aug 84	425	0.540	229.50
9	Sep 84	84	0.380	31.92
10	Oct 84	28	0.350	9.80
11	Nov 84	90	0.260	23.40
12	Dec 84			0.00
13	Jan 85	118	0.310	36.58
14	Feb 85	14	0.530	7.42
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.760	41.04
17	May 85	20	0.080	1.60
18	Jun 85	51	0.820	41.82
19	Jul 85	339	0.320	108.48
20	Aug 85	529	0.410	216.89
21	Sep 85	98	0.660	64.68
		2624	9.230	1194.34

Y ave. = 131.20 N= 20.00
X ave. = 0.46
XY = 1194.34
Sy = 149.985
Sx = 0.171

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.034

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.530	23.32
2	Nov 83	102	0.500	51.00
3	~~Mar 84~~ Dec 83	8	0.420	3.36
4	Apr 84	47	0.350	16.45
5	May 84	172	0.510	87.72
6	Jun 84	20	0.450	9.00
7	Jul 84	61	0.510	31.11
8	Aug 84	425	0.500	212.50
9	Sep 84	84	0.360	30.24
10	Oct 84	28	0.310	8.68
11	Nov 84	90	0.260	23.40
12	Dec 84			0.00
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.550	7.70
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.700	37.80
17	May 85	20	0.070	1.40
18	Jun 85	51	0.840	42.84
19	Jul 85	339	0.340	115.26
20	Aug 85	529	0.410	216.89
21	Sep 85	98	0.600	58.80
		2624	9.010	1166.81

Y ave. = 131.20 N= 20.00
X ave. = 0.45
XY = 1166.81
Sy = 149.985
Sx = 0.164

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.033

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.510	22.44
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.450	3.60
4	Apr 84	47	0.370	17.39
5	May 84	172	0.510	87.72
6	Jun 84	20	0.600	12.00
7	Jul 84	61	0.530	32.33
8	Aug 84	425	0.520	221.00
9	Sep 84	84	0.380	31.92
10	Oct 84	28	0.330	9.24
11	Nov 84	90	0.280	25.20
12	Dec 84	138	0.250	34.50
13	Jan 85	118	0.330	38.94
14	Feb 85	14	0.520	7.28
15	Mar 85	320	0.470	150.40
16	Apr 85	54	0.730	39.42
17	May 85	20	0.200	4.00
18	Jun 85	51	0.880	44.88
19	Jul 85	339	0.320	108.48
20	Aug 85	529	0.460	243.34
21	Sep 85	98	0.730	71.54
		2762	9.910	1260.70

Y ave. = 131.52 N= 21.00
X ave. = 0.47
XY = 1260.70
Sy = 146.195
Sx = 0.169

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.086

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.510	22.44
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.420	3.36
4	Apr 84	47	0.370	17.39
5	May 84	172	0.550	94.60
6	Jun 84	20	0.500	10.00
7	Jul 84	61	0.540	32.94
8	Aug 84	425	0.500	212.50
9	Sep 84	84	0.410	34.44
10	Oct 84	28	0.350	9.80
11	Nov 84	90	0.260	23.40
12	Dec 84	138	0.250	34.50
13	Jan 85	118	0.310	36.58
14	Feb 85	14	0.530	7.42
15	Mar 85	320	0.500	160.00
16	Apr 85	54	0.710	38.34
17	May 85	20	0.240	4.80
18	Jun 85	51	0.900	45.90
19	Jul 85	339	0.210	71.19
20	Aug 85	529	0.480	253.92
21	Sep 85	98	0.600	58.80
		2762	9.680	1227.40

Y ave. = 131.52 N= 21.00
X ave. = 0.46
XY = 1227.40
Sy = 146.195
Sx = 0.166

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.094

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.530	23.32
2	Nov 83	102	0.540	55.08
3	~~Mar 84~~ Dec 83	8	0.430	3.44
4	Apr 84	47	0.350	16.45
5	May 84	172	0.550	94.60
6	Jun 84	20	0.480	9.60
7	Jul 84	61	0.500	30.50
8	Aug 84	425	0.400	170.00
9	Sep 84	84	0.400	33.60
10	Oct 84	28	0.310	8.68
11	Nov 84	90	0.280	25.20
12	Dec 84	138	0.290	40.02
13	Jan 85	118	0.340	40.12
14	Feb 85	14	0.480	6.72
15	Mar 85	320	0.430	137.60
16	Apr 85	54	0.760	41.04
17	May 85	20	0.260	5.20
18	Jun 85	51	0.910	46.41
19	Jul 85	339	0.320	108.48
20	Aug 85	529	0.410	216.89
21	Sep 85	98	0.620	60.76
		2762	9.590	1173.71

Y ave. = 131.52 N= 21.00
X ave. = 0.46
XY = 1173.71
Sy = 146.195
Sx = 0.161

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.186

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.530	23.32
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.450	3.60
4	Apr 84	47	0.380	17.86
5	May 84	172	0.510	87.72
6	Jun 84	20	0.580	11.60
7	Jul 84	61	0.510	31.11
8	Aug 84	425	0.420	178.50
9	Sep 84	84	0.410	34.44
10	Oct 84	28	0.330	9.24
11	Nov 84	90	0.260	23.40
12	Dec 84	138	0.250	34.50
13	Jan 85	118	0.210	24.78
14	Feb 85	14	0.530	7.42
15	Mar 85	320	0.410	131.20
16	Apr 85	54	0.750	40.50
17	May 85			0.00
18	Jun 85	51	0.870	44.37
19	Jul 85	339	0.230	77.97
20	Aug 85	529	0.520	275.08
21	Sep 85	98	0.640	62.72
		2742	9.310	1172.37

Y ave. = 137.10 N= 20.00
X ave. = 0.47
XY = 1172.37
Sy = 147.684
Sx = 0.170

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.218

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) LEAD	Xi * Yi
1	Oct 83	44	0.490	21.56
2	Nov 83	102	0.520	53.04
3	~~Mar 84~~ Dec 83	8	0.360	2.88
4	Apr 84	47	0.380	17.86
5	May 84	172	0.530	91.16
6	Jun 84	20	0.500	10.00
7	Jul 84	61	0.480	29.28
8	Aug 84	425	0.440	187.00
9	Sep 84	84	0.430	36.12
10	Oct 84	28	0.330	9.24
11	Nov 84	90	0.280	25.20
12	Dec 84	138	0.270	37.26
13	Jan 85	118	0.290	34.22
14	Feb 85	14	0.410	5.74
15	Mar 85	320	0.360	115.20
16	Apr 85	54	0.750	40.50
17	May 85	20	0.100	2.00
18	Jun 85	51	0.960	48.96
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.520	275.08
21	Sep 85	98	0.580	56.84
		2762	9.250	1190.67

Y ave. = 131.52 N= 21.00
X ave. = 0.44
XY = 1190.67
Sy = 146.195
Sx = 0.182

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.049

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.160	7.04
2	Nov 83	102	0.150	15.30
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.080	3.76
5	May 84	172	0.110	18.92
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.180	10.98
8	Aug 84	425	0.090	38.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.080	7.20
12	Dec 84	138	0.070	9.66
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.140	44.80
16	Apr 85	54	0.070	3.78
17	May 85	20	0.080	1.60
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.050	4.90
		2762	1.890	241.46

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 241.46
Sy = 146.195
Sx = 0.038

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.064

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.090	4.23
5	May 84	172	0.100	17.20
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.180	10.98
8	Aug 84	425	0.090	38.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.050	6.90
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.150	48.00
16	Apr 85	54	0.080	4.32
17	May 85	20	0.080	1.60
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2762	1.840	233.71

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 233.71
Sy = 146.195
Sx = 0.040

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.072

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.160	7.04
2	Nov 83	102	0.130	13.26
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.080	3.76
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.170	10.37
8	Aug 84	425	0.100	42.50
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.080	7.20
12	Dec 84			0.00
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.140	44.80
16	Apr 85	54	0.070	3.78
17	May 85	20	0.090	1.80
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.030	2.94
		2624	1.800	232.89

Y ave. = 131.20 N= 20.00
X ave. = 0.09
XY = 232.89
Sy = 149.985
Sx = 0.036

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = -0.032

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.080	3.76
5	May 84	172	0.110	18.92
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.170	10.37
8	Aug 84	425	0.090	38.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.110	3.08
11	Nov 84	90	0.080	7.20
12	Dec 84			0.00
13	Jan 85	118	0.080	9.44
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.150	48.00
16	Apr 85	54	0.080	4.32
17	May 85	20	0.090	1.80
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.040	3.92
		2624	1.830	236.90

Y ave. = 131.20 N= 20.00
X ave. = 0.09
XY = 236.90
Sy = 149.985
Sx = 0.036

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.031

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.130	13.26
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.080	3.76
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.170	10.37
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.090	2.52
11	Nov 84	90	0.080	7.20
12	Dec 84			0.00
13	Jan 85	118	0.090	10.62
14	Feb 85	14	0.070	0.98
15	Mar 85	320	0.150	48.00
16	Apr 85	54	0.070	3.78
17	May 85	20	0.090	1.80
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2624	1.800	221.32

Y ave. = 131.20 N= 20.00
X ave. = 0.09
XY = 221.32
Sy = 149.985
Sx = 0.034

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.151

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.120	12.24
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.090	4.23
5	May 84	172	0.100	17.20
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.170	10.37
8	Aug 84	425	0.090	38.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.090	2.52
11	Nov 84	90	0.080	7.20
12	Dec 84	138	0.090	12.42
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.030	0.42
15	Mar 85	320	0.130	41.60
16	Apr 85	54	0.080	4.32
17	May 85	20	0.100	2.00
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2762	1.850	233.23

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 233.23
Sy = 146.195
Sx = 0.034

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.101

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.130	5.72
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.090	4.23
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.180	10.98
8	Aug 84	425	0.090	38.25
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.090	12.42
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.150	48.00
16	Apr 85	54	0.080	4.32
17	May 85	20	0.080	1.60
18	Jun 85	51	0.070	3.57
19	Jul 85	339	0.080	27.12
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.030	2.94
		2762	1.890	247.49

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 247.49
Sy = 146.195
Sx = 0.033

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.011

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.090	4.23
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.180	10.98
8	Aug 84	425	0.060	25.50
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.100	13.80
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.080	1.12
15	Mar 85	320	0.100	32.00
16	Apr 85	54	0.080	4.32
17	May 85	20	0.080	1.60
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.060	20.34
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2762	1.830	209.74

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 209.74
Sy = 146.195
Sx = 0.032

$$\text{Correlation Factor} = \frac{\text{Summmation } (X_i Y_i) - n\, X_{ave}\, Y_{ave}}{S_x\, S_y\, (n-1)}$$

Correlation Factor = -0.330

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.150	6.60
2	Nov 83	102	0.110	11.22
3	~~Mar 84~~ Dec 83	8	0.080	0.64
4	Apr 84	47	0.080	3.76
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.180	10.98
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.070	9.66
13	Jan 85	118	0.070	8.26
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.090	28.80
16	Apr 85	54	0.080	4.32
17	May 85	20	0.080	1.60
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.070	23.73
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.040	3.92
		2762	1.770	209.09

Y ave. = 131.52 N= 21.00
X ave. = 0.08
XY = 209.09
Sy = 146.195
Sx = 0.033

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.247

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) MANGANESE	Xi * Yi
1	Oct 83	44	0.130	5.72
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.080	3.76
5	May 84	172	0.100	17.20
6	Jun 84	20	0.090	1.80
7	Jul 84	61	0.170	10.37
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.100	2.80
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.080	11.04
13	Jan 85	118	0.080	9.44
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.090	28.80
16	Apr 85	54	0.080	4.32
17	May 85	20	0.100	2.00
18	Jun 85	51	0.050	2.55
19	Jul 85	339	0.060	20.34
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.030	2.94
		2762	1.800	213.19

Y ave. = 131.52 N= 21.00
X ave. = 0.09
XY = 213.19
Sy = 146.195
Sx = 0.032

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.253

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.250	11.00
2	Nov 83	102	0.390	39.78
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		146	0.640	50.78

Y ave. = 73.00 N= 2.00
X ave. = 0.32
XY = 50.78
Sy = 41.012
Sx = 0.099

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.400	17.60
2	Nov 83	102	0.130	13.26
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		146	0.530	30.86

Y ave. = 73.00 N= 2.00
X ave. = 0.27
XY = 30.86
Sy = 41.012
Sx = 0.191

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = -1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.550	24.20
2	Nov 83	102	0.170	17.34
3	~~Mar 84~~ Dec 83	8	0.120	0.96
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.080	4.08
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		205	0.920	46.58

Y ave. = 51.25 N= 4.00
X ave. = 0.23
XY = 46.58
Sy = 38.724
Sx = 0.216

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.023

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.330	14.52
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.150	1.20
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.570	24.90

Y ave. = 51.33 N= 3.00
X ave. = 0.19
XY = 24.90
Sy = 47.427
Sx = 0.125

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.368

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.360	15.84
2	Nov 83	102	0.310	31.62
3	~~Mar 84~~ Dec 83	8	0.280	2.24
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.950	49.70

Y ave. = 51.33 N= 3.00
X ave. = 0.32
XY = 49.70
Sy = 47.427
Sx = 0.040

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.243

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	1.600	70.40
2	Nov 83	102	0.280	28.56
3	~~Mar 84~~ Dec 83	8	0.120	0.96
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	2.000	99.92

Y ave. = 51.33 N= 3.00
X ave. = 0.67
XY = 99.92
Sy = 47.427
Sx = 0.812

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.036

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.470	20.68
2	Nov 83	102	0.240	24.48
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		146	0.710	45.16

Y ave. = 73.00 N= 2.00
X ave. = 0.36
XY = 45.16
Sy = 41.012
Sx = 0.163

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.690	30.36
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		44	0.690	30.36

Y ave. = 44.00 N= 1.00
X ave. = 0.69
XY = 30.36
Sy = ??
Sx = ??

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = ??

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.360	15.84
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		146	0.450	25.02

Y ave. = 73.00 N= 2.00
X ave. = 0.23
XY = 25.02
Sy = 41.012
Sx = 0.191

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) MERCURY	Xi * Yi
1	Oct 83	44	0.360	15.84
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		146	0.450	25.02

Y ave. = 73.00 N= 2.00
X ave. = 0.23
XY = 25.02
Sy = 41.012
Sx = 0.191

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.064	2.82
2	Nov 83	102	0.029	2.96
3	~~Mar 84~~ Dec 83	8	0.011	0.09
4	Apr 84	47	0.008	0.38
5	May 84	172	0.009	1.55
6	Jun 84	20	0.100	2.00
7	Jul 84	61	0.006	0.37
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84	28	0.003	0.08
11	Nov 84	90	0.005	0.45
12	Dec 84	138	0.070	9.66
13	Jan 85	118	0.006	0.71
14	Feb 85	14	0.018	0.25
15	Mar 85	320	0.026	8.32
16	Apr 85			0.00
17	May 85	20	0.003	0.06
18	Jun 85	51	0.012	0.61
19	Jul 85	339	0.010	3.39
20	Aug 85			0.00
21	Sep 85	98	0.003	0.29
		1670	0.383	33.98

Y ave. = 98.24 N= 17.00
X ave. = 0.02
XY = 33.98
Sy = 98.818
Sx = 0.028

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.081

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.075	3.30
2	Nov 83	102	0.030	3.06
3	~~Mar 84~~ Dec 83	8	0.004	0.03
4	Apr 84	47	0.025	1.18
5	May 84	172	0.011	1.89
6	Jun 84	20	0.004	0.08
7	Jul 84	61	0.018	1.10
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84	28	0.007	0.20
11	Nov 84			0.00
12	Dec 84	138	0.051	7.04
13	Jan 85			0.00
14	Feb 85	14	0.011	0.15
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.019	0.97
19	Jul 85	339	0.009	3.05
20	Aug 85			0.00
21	Sep 85	98	0.009	0.88
		1122	0.273	22.93

Y ave. = 86.31 N= 13.00
X ave. = 0.02
XY = 22.93
Sy = 90.660
Sx = 0.021

$$\text{Correlation Factor} = \frac{\text{Summmation } (Xi\ Yi) - n\ Xave\ Yave}{Sx\ Sy\ (n - 1)}$$

Correlation Factor = -0.028

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.044	1.94
2	Nov 83	102	0.025	2.55
3	~~Mar 84~~ Dec 83	8	0.027	0.22
4	Apr 84			0.00
5	May 84	172	0.008	1.38
6	Jun 84	20	0.071	1.42
7	Jul 84	61	0.010	0.61
8	Aug 84	425	0.004	1.70
9	Sep 84	84	0.004	0.34
10	Oct 84	28	0.008	0.22
11	Nov 84	90	0.003	0.27
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85	14	0.005	0.07
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	0.011	0.56
19	Jul 85	339	0.020	6.78
20	Aug 85			0.00
21	Sep 85	98	0.006	0.59
		1536	0.246	18.64

Y ave. = 109.71 N= 14.00
X ave. = 0.02
XY = 18.64
Sy = 124.491
Sx = 0.019

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.267

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.079	3.48
2	Nov 83	102	0.015	1.53
3	~~Mar 84~~ Dec 83	8	0.006	0.05
4	Apr 84			0.00
5	May 84	172	0.013	2.24
6	Jun 84	20	0.007	0.14
7	Jul 84	61	0.009	0.55
8	Aug 84			0.00
9	Sep 84	84	0.004	0.34
10	Oct 84	28	0.007	0.20
11	Nov 84	90	0.004	0.36
12	Dec 84			0.00
13	Jan 85	118	0.005	0.59
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85	20	0.018	0.36
18	Jun 85	51	0.018	0.92
19	Jul 85	339	0.010	3.39
20	Aug 85			0.00
21	Sep 85	98	0.009	0.88
		1235	0.204	15.01

Y ave. = 88.21 N= 14.00
X ave. = 0.01
XY = 15.01
Sy = 85.284
Sx = 0.019

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.141

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.051	2.24
2	Nov 83	102	0.024	2.45
3	~~Mar 84~~ Dec 83	8	0.003	0.02
4	Apr 84			0.00
5	May 84	172	0.010	1.72
6	Jun 84	20	0.008	0.16
7	Jul 84	61	0.006	0.37
8	Aug 84	425	0.008	3.40
9	Sep 84	84	0.005	0.42
10	Oct 84	28	0.010	0.28
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	0.003	0.35
14	Feb 85	14	0.015	0.21
15	Mar 85			0.00
16	Apr 85	54	0.003	0.16
17	May 85	20	0.013	0.26
18	Jun 85	51	0.013	0.66
19	Jul 85	339	0.017	5.76
20	Aug 85			0.00
21	Sep 85	98	0.005	0.49
		1638	0.194	18.96

Y ave. = 102.38 N= 16.00
X ave. = 0.01
XY = 18.96
Sy = 118.728
Sx = 0.012

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.042

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.037	3.77
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	0.008	1.38
6	Jun 84	20	0.007	0.14
7	Jul 84	61	0.310	18.91
8	Aug 84	425	0.004	1.70
9	Sep 84	84	0.003	0.25
10	Oct 84			0.00
11	Nov 84	90	0.004	0.36
12	Dec 84	138	0.066	9.11
13	Jan 85	118	0.003	0.35
14	Feb 85	14	0.005	0.07
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85	20	0.018	0.36
18	Jun 85	51	0.022	1.12
19	Jul 85	339	0.010	3.39
20	Aug 85			0.00
21	Sep 85	98	0.018	1.76
		1776	0.575	45.32

Y ave. = 118.40 N= 15.00
X ave. = 0.04
XY = 45.32
Sy = 117.180
Sx = 0.078

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.178

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.004	0.18
2	Nov 83	102	0.014	1.43
3	~~Mar 84~~ Dec 83	8	0.003	0.02
4	Apr 84			0.00
5	May 84	172	0.008	1.38
6	Jun 84	20	0.008	0.16
7	Jul 84	61	0.003	0.18
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	0.003	0.41
13	Jan 85	118	0.003	0.35
14	Feb 85	14	0.005	0.07
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85	20	0.006	0.12
18	Jun 85	51	0.006	0.31
19	Jul 85	339	0.006	2.03
20	Aug 85			0.00
21	Sep 85	98	0.013	1.27
		1185	0.082	7.92

Y ave. = 91.15 N= 13.00
X ave. = 0.01
XY = 7.92
Sy = 90.729
Sx = 0.004

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.112

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.044	1.94
2	Nov 83	102	0.008	0.82
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	0.009	1.55
6	Jun 84	20	0.012	0.24
7	Jul 84	61	0.004	0.24
8	Aug 84			0.00
9	Sep 84	84	0.005	0.42
10	Oct 84	28	0.004	0.11
11	Nov 84	90	0.003	0.27
12	Dec 84	138	0.005	0.69
13	Jan 85			0.00
14	Feb 85	14	0.011	0.15
15	Mar 85			0.00
16	Apr 85	54	0.003	0.16
17	May 85	20	0.005	0.10
18	Jun 85	51	0.011	0.56
19	Jul 85	339	0.007	2.37
20	Aug 85			0.00
21	Sep 85	98	0.004	0.39
		1315	0.135	10.02

Y ave. = 87.67 N= 15.00
X ave. = 0.01
XY = 10.02
Sy = 82.974
Sx = 0.010

$$\text{Correlation Factor} = \frac{\text{Summmation } (X_i\ Y_i) - n\ X_{ave}\ Y_{ave}}{S_x\ S_y\ (n - 1)}$$

Correlation Factor = -0.154

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.015	0.66
2	Nov 83	102	0.037	3.77
3	~~Mar 84~~ Dec 83	8	0.003	0.02
4	Apr 84			0.00
5	May 84	172	0.014	2.41
6	Jun 84	20	0.004	0.08
7	Jul 84			0.00
8	Aug 84	425	0.009	3.83
9	Sep 84	84	0.007	0.59
10	Oct 84			0.00
11	Nov 84	90	0.003	0.27
12	Dec 84	138	0.004	0.55
13	Jan 85	118	0.003	0.35
14	Feb 85	14	0.008	0.11
15	Mar 85	320	0.003	0.96
16	Apr 85	54	0.003	0.16
17	May 85	20	0.009	0.18
18	Jun 85	51	0.006	0.31
19	Jul 85	339	0.020	6.78
20	Aug 85			0.00
21	Sep 85	98	0.006	0.59
		2097	0.154	21.62

Y ave. = 123.35 N= 17.00
X ave. = 0.01
XY = 21.62
Sy = 123.871
Sx = 0.009

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.152

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) NITRATE + NITRITE	Xi * Yi
1	Oct 83	44	0.003	0.13
2	Nov 83	102	0.015	1.53
3	~~Mar 84~~ Dec 83	8	0.005	0.04
4	Apr 84			0.00
5	May 84	172	0.009	1.55
6	Jun 84	20	0.005	0.10
7	Jul 84	61	0.018	1.10
8	Aug 84	425	0.004	1.70
9	Sep 84	84	0.005	0.42
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	0.005	0.69
13	Jan 85	118	0.006	0.71
14	Feb 85	14	0.006	0.08
15	Mar 85	320	0.003	0.96
16	Apr 85			0.00
17	May 85	20	0.003	0.06
18	Jun 85	51	0.008	0.41
19	Jul 85	339	0.010	3.39
20	Aug 85	529	0.003	1.59
21	Sep 85	98	0.009	0.88
		2543	0.117	15.34

Y ave. = 149.59 N= 17.00
X ave. = 0.01
XY = 15.34
Sy = 157.385
Sx = 0.004

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.201

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	5.000	220.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	2.000	94.00
5	May 84	172	6.000	1032.00
6	Jun 84			0.00
7	Jul 84	61	2.000	122.00
8	Aug 84	425	2.000	850.00
9	Sep 84	84	3.000	252.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	9.000	1242.00
13	Jan 85	118	9.000	1062.00
14	Feb 85	14	28.000	392.00
15	Mar 85	320	3.000	960.00
16	Apr 85	54	2.000	108.00
17	May 85			0.00
18	Jun 85	51	1.000	51.00
19	Jul 85	339	2.000	678.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	8.000	784.00
		2494	83.000	8376.00

Y ave. = 166.27 N= 15.00
X ave. = 5.53
XY = 8376.00
Sy = 159.443
Sx = 6.823

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.356

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	4.000	188.00
5	May 84	172	1.000	172.00
6	Jun 84	20	3.000	60.00
7	Jul 84	61	6.000	366.00
8	Aug 84			0.00
9	Sep 84	84	2.000	168.00
10	Oct 84	28	2.000	56.00
11	Nov 84	90	3.000	270.00
12	Dec 84	138	6.000	828.00
13	Jan 85	118	10.000	1180.00
14	Feb 85	14	3.000	42.00
15	Mar 85	320	19.000	6080.00
16	Apr 85	54	4.000	216.00
17	May 85	20	3.000	60.00
18	Jun 85			0.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	6.000	588.00
		2176	77.000	11274.00

Y ave. = 128.00 N= 17.00
X ave. = 4.53
XY = 11274.00
Sy = 141.091
Sx = 4.389

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.143

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	5.000	235.00
5	May 84	172	3.000	516.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	6.000	366.00
8	Aug 84			0.00
9	Sep 84	84	1.000	84.00
10	Oct 84			0.00
11	Nov 84	90	4.000	360.00
12	Dec 84			0.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	2.000	28.00
15	Mar 85			0.00
16	Apr 85	54	4.000	216.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	3.000	1017.00
20	Aug 85	529	2.000	1058.00
21	Sep 85	98	13.000	1274.00
		1670	48.000	5424.00

Y ave. = 128.46 N= 13.00
X ave. = 3.69
XY = 5424.00
Sy = 147.161
Sx = 3.199

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.131

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	6.000	282.00
5	May 84	172	1.000	172.00
6	Jun 84	20	5.000	100.00
7	Jul 84	61	5.000	305.00
8	Aug 84			0.00
9	Sep 84	84	1.000	84.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85	14	6.000	84.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	5.000	270.00
17	May 85	20	1.000	20.00
18	Jun 85			0.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	2.000	1058.00
21	Sep 85	98	6.000	588.00
		1802	43.000	3754.00

Y ave. = 138.62 N= 13.00
X ave. = 3.31
XY = 3754.00
Sy = 159.530
Sx = 2.213

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.521

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	7.000	308.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	2.000	94.00
5	May 84	172	1.000	172.00
6	Jun 84	20	2.000	40.00
7	Jul 84	61	5.000	305.00
8	Aug 84	425	5.000	2125.00
9	Sep 84	84	3.000	252.00
10	Oct 84	28	2.000	56.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	2.000	236.00
14	Feb 85	14	8.000	112.00
15	Mar 85			0.00
16	Apr 85	54	3.000	162.00
17	May 85	20	2.000	40.00
18	Jun 85	51	2.000	102.00
19	Jul 85	339	1.000	339.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	8.000	784.00
		2104	54.000	5656.00

Y ave. = 131.50 N= 16.00
X ave. = 3.38
XY = 5656.00
Sy = 157.912
Sx = 2.446

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.249

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	4.000	176.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	1.000	47.00
5	May 84	172	2.000	344.00
6	Jun 84			0.00
7	Jul 84	61	18.000	1098.00
8	Aug 84			0.00
9	Sep 84	84	3.000	252.00
10	Oct 84			0.00
11	Nov 84	90	23.000	2070.00
12	Dec 84	138	5.000	690.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85	54	3.000	162.00
17	May 85	20	2.000	40.00
18	Jun 85	51	11.000	561.00
19	Jul 85			0.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	19.000	1862.00
		1388	92.000	7831.00

Y ave. = 115.67 N= 12.00
X ave. = 7.67
XY = 7831.00
Sy = 137.003
Sx = 7.970

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.234

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83			0.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	1.000	172.00
6	Jun 84			0.00
7	Jul 84	61	28.000	1708.00
8	Aug 84			0.00
9	Sep 84	84	2.000	168.00
10	Oct 84			0.00
11	Nov 84	90	12.000	1080.00
12	Dec 84	138	3.000	414.00
13	Jan 85			0.00
14	Feb 85	14	3.000	42.00
15	Mar 85	320	13.000	4160.00
16	Apr 85	54	2.000	108.00
17	May 85	20	1.000	20.00
18	Jun 85	51	2.000	102.00
19	Jul 85			0.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	4.000	392.00
		1631	72.000	8895.00

Y ave. = 135.92 N= 12.00
X ave. = 6.00
XY = 8895.00
Sy = 148.869
Sx = 8.057

$$\text{Correlation Factor} = \frac{\text{Summmation } (X_i Y_i) - n\, X_{ave}\, Y_{ave}}{S_x\, S_y\, (n-1)}$$

Correlation Factor = -0.068

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

N

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	5.000	220.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	1.000	47.00
5	May 84	172	1.000	172.00
6	Jun 84			0.00
7	Jul 84	61	4.000	244.00
8	Aug 84			0.00
9	Sep 84	84	3.000	252.00
10	Oct 84	28	6.000	168.00
11	Nov 84	90	11.000	990.00
12	Dec 84	138	4.000	552.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	3.000	42.00
15	Mar 85	320	10.000	3200.00
16	Apr 85	54	6.000	324.00
17	May 85	20	2.000	40.00
18	Jun 85	51	1.000	51.00
19	Jul 85			0.00
20	Aug 85	529	2.000	1058.00
21	Sep 85	98	4.000	392.00
		1868	64.000	7870.00

Y ave. = 116.75 N= 16.00
X ave. = 4.00
XY = 7870.00
Sy = 133.223
Sx = 3.055

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.065

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	1.000	47.00
5	May 84	172	2.000	344.00
6	Jun 84			0.00
7	Jul 84	61	2.000	122.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84	28	9.000	252.00
11	Nov 84	90	4.000	360.00
12	Dec 84			0.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	7.000	98.00
15	Mar 85	320	8.000	2560.00
16	Apr 85	54	5.000	270.00
17	May 85	20	2.000	40.00
18	Jun 85	51	1.000	51.00
19	Jul 85			0.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	7.000	686.00
		1646	53.000	5609.00

Y ave. = 117.57 N= 14.00
X ave. = 3.79
XY = 5609.00
Sy = 142.692
Sx = 2.887

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.116

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) OIL	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	1.000	172.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84	425	2.000	850.00
9	Sep 84	84	1.000	84.00
10	Oct 84	28	4.000	112.00
11	Nov 84	90	8.000	720.00
12	Dec 84	138	13.000	1794.00
13	Jan 85	118	1.000	118.00
14	Feb 85	14	2.000	28.00
15	Mar 85	320	2.000	640.00
16	Apr 85	54	3.000	162.00
17	May 85			0.00
18	Jun 85	51	1.000	51.00
19	Jul 85			0.00
20	Aug 85	529	1.000	529.00
21	Sep 85	98	5.000	490.00
		2165	47.000	5882.00

Y ave. = 154.64 N= 14.00
X ave. = 3.36
XY = 5882.00
Sy = 157.824
Sx = 3.411

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = -0.198

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	7.000	308.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83	8	0.110	0.88
4	Apr 84	47	12.000	564.00
5	May 84			0.00
6	Jun 84	20	4.000	80.00
7	Jul 84	61	161.000	9821.00
8	Aug 84	425	13.000	5525.00
9	Sep 84	84	11.000	924.00
10	Oct 84	28	6.000	168.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	28.000	9492.00
20	Aug 85			0.00
21	Sep 85			0.00
		1056	242.110	26882.88

Y ave. = 117.33 N= 9.00
X ave. = 26.90
XY = 26882.88
Sy = 153.220
Sx = 50.901

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.024

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	8.000	352.00
2	Nov 83	102	9.000	918.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	13.000	611.00
5	May 84	172	17.000	2924.00
6	Jun 84			0.00
7	Jul 84	61	27.000	1647.00
8	Aug 84			0.00
9	Sep 84	84	2.000	168.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85	339	18.000	6102.00
20	Aug 85			0.00
21	Sep 85			0.00
		849	94.000	12722.00

Y ave. = 121.29 N= 7.00
X ave. = 13.43
XY = 12722.00
Sy = 105.562
Sx = 8.142

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.256

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	5.000	220.00
2	Nov 83	102	9.000	918.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	15.000	705.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84	61	90.000	5490.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	17.000	867.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		305	136.000	8200.00

Y ave. = 61.00 N= 5.00
X ave. = 27.20
XY = 8200.00
Sy = 23.801
Sx = 35.429

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.028

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	5.000	220.00
2	Nov 83	102	9.000	918.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	13.000	611.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84	61	26.000	1586.00
8	Aug 84	425	12.000	5100.00
9	Sep 84			0.00
10	Oct 84	28	18.000	504.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	9.000	459.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		758	92.000	9398.00

Y ave. = 108.29 N= 7.00
X ave. = 13.14
XY = 9398.00
Sy = 141.539
Sx = 6.962

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.095

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	2.000	88.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	11.000	517.00
5	May 84	172	11.000	1892.00
6	Jun 84			0.00
7	Jul 84	61	16.000	976.00
8	Aug 84	425	6.000	2550.00
9	Sep 84	84	43.000	3612.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	4.000	204.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		884	93.000	9839.00

Y ave. = 126.29 N= 7.00
X ave. = 13.29
XY = 9839.00
Sy = 139.102
Sx = 13.949

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.164

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	6.000	264.00
2	Nov 83	102	3.000	306.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	11.000	517.00
5	May 84	172	2.000	344.00
6	Jun 84	20	2.000	40.00
7	Jul 84	61	4.000	244.00
8	Aug 84	425	6.000	2550.00
9	Sep 84	84	3.000	252.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		955	37.000	4517.00

Y ave. = 119.38 N= 8.00
X ave. = 4.63
XY = 4517.00
Sy = 131.980
Sx = 3.021

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.036

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	2.000	88.00
2	Nov 83	102	6.000	612.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	5.000	235.00
5	May 84			0.00
6	Jun 84	20	4.000	80.00
7	Jul 84	61	16.000	976.00
8	Aug 84	425	17.000	7225.00
9	Sep 84			0.00
10	Oct 84	28	9.000	252.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	4.000	204.00
19	Jul 85	339	6.000	2034.00
20	Aug 85			0.00
21	Sep 85			0.00
		1117	69.000	11706.00

Y ave. = 124.11 N= 9.00
X ave. = 7.67
XY = 11706.00
Sy = 149.570
Sx = 5.362

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.490

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	2.000	88.00
2	Nov 83	102	7.000	714.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	12.000	564.00
5	May 84	172	3.000	516.00
6	Jun 84	20	2.000	40.00
7	Jul 84	61	24.000	1464.00
8	Aug 84	425	5.000	2125.00
9	Sep 84			0.00
10	Oct 84	28	6.000	168.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		899	61.000	5679.00

Y ave. = 112.38 N= 8.00
X ave. = 7.63
XY = 5679.00
Sy = 135.561
Sx = 7.386

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.168

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	5.000	220.00
2	Nov 83	102	18.000	1836.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	10.000	470.00
5	May 84			0.00
6	Jun 84	20	2.000	40.00
7	Jul 84	61	11.000	671.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		274	46.000	3237.00

Y ave. = 54.80 N= 5.00
X ave. = 9.20
XY = 3237.00
Sy = 30.227
Sx = 6.140

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.965

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) PHENOLS	Xi * Yi
1	Oct 83	44	14.000	616.00
2	Nov 83	102	18.000	1836.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	10.000	470.00
5	May 84	172	4.000	688.00
6	Jun 84			0.00
7	Jul 84	61	7.000	427.00
8	Aug 84			0.00
9	Sep 84	84	8.000	672.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		510	61.000	4709.00

Y ave. = 85.00 N= 6.00
X ave. = 10.17
XY = 4709.00
Sy = 48.083
Sx = 5.076

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.390

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.027	1.19
2	Nov 83	102	0.021	2.14
3	~~Mar 84~~ Dec 83	8	0.011	0.09
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.059	3.42

Y ave. = 51.33 N= 3.00
X ave. = 0.02
XY = 3.42
Sy = 47.427
Sx = 0.008

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.508

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.019	0.84
2	Nov 83	102	0.117	11.93
3	~~Mar 84~~ Dec 83	8	0.008	0.06
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.144	12.83

Y ave. = 51.33 N= 3.00
X ave. = 0.05
XY = 12.83
Sy = 47.427
Sx = 0.060

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.956

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.065	2.86
2	Nov 83	102	0.067	6.83
3	~~Mar 84~~ Dec 83	8	0.012	0.10
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.144	9.79

Y ave. = 51.33 N= 3.00
X ave. = 0.05
XY = 9.79
Sy = 47.427
Sx = 0.031

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.810

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.024	1.06
2	Nov 83	102	0.043	4.39
3	~~Mar 84~~ Dec 83	8	0.012	0.10
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.079	5.54

Y ave. = 51.33 N= 3.00
X ave. = 0.03
XY = 5.54
Sy = 47.427
Sx = 0.016

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.015	0.66
2	Nov 83	102	0.053	5.41
3	~~Mar 84~~ Dec 83	8	0.009	0.07
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.077	6.14

Y ave. = 51.33 N= 3.00
X ave. = 0.03
XY = 6.14
Sy = 47.427
Sx = 0.024

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.966

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.023	1.01
2	Nov 83	102	0.091	9.28
3	~~Mar 84~~ Dec 83	8	0.005	0.04
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.119	10.33

Y ave. = 51.33 N= 3.00
X ave. = 0.04
XY = 10.33
Sy = 47.427
Sx = 0.045

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.982

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.029	1.28
2	Nov 83	102	0.064	6.53
3	~~Mar 84~~ Dec 83	8	0.007	0.06
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.100	7.86

Y ave. = 51.33 N= 3.00
X ave. = 0.03
XY = 7.86
Sy = 47.427
Sx = 0.029

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.042	1.85
2	Nov 83	102	0.068	6.94
3	~~Mar 84~~ Dec 83	8	0.008	0.06
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.118	8.85

Y ave. = 51.33 N= 3.00
X ave. = 0.04
XY = 8.85
Sy = 47.427
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.978

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.023	1.01
2	Nov 83	102	0.051	5.20
3	~~Mar 84~~ Dec 83	8	0.007	0.06
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.081	6.27

Y ave. = 51.33 N= 3.00
X ave. = 0.03
XY = 6.27
Sy = 47.427
Sx = 0.022

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 1.000

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) SELENIUM	Xi * Yi
1	Oct 83	44	0.031	1.36
2	Nov 83	102	0.085	8.67
3	~~Mar 84~~ Dec 83	8	0.005	0.04
4	Apr 84			0.00
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85			0.00
19	Jul 85			0.00
20	Aug 85			0.00
21	Sep 85			0.00
		154	0.121	10.07

Y ave. = 51.33 N= 3.00
X ave. = 0.04
XY = 10.07
Sy = 47.427
Sx = 0.041

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.998

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.020	0.88
2	Nov 83	102	0.080	8.16
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.060	25.50
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.030	3.54
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.060	3.24
17	May 85	20	0.100	2.00
18	Jun 85	51	1.770	90.27
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.080	7.84
		2762	2.850	249.87

Y ave. = 131.52 N= 21.00
X ave. = 0.14
XY = 249.87
Sy = 146.195
Sx = 0.375

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.114

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.080	8.16
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.060	2.82
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.030	4.14
13	Jan 85	118	0.030	3.54
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.060	3.24
17	May 85	20	0.090	1.80
18	Jun 85	51	1.360	69.36
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.070	37.03
21	Sep 85	98	0.050	4.90
		2762	2.390	212.40

Y ave. = 131.52 N= 21.00
X ave. = 0.11
XY = 212.40
Sy = 146.195
Sx = 0.286

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.122

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.040	0.32
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.030	2.70
12	Dec 84	138		0.00
13	Jan 85	118		0.00
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.060	3.24
17	May 85	20	0.080	1.60
18	Jun 85	51	0.730	37.23
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.060	5.88
		2762	1.630	164.80

Y ave. = 131.52 N= 19.00
X ave. = 0.09
XY = 164.80
Sy = 146.195
Sx = 0.157

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.120

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.060	2.82
5	May 84	172	0.050	8.60
6	Jun 84	20	0.040	0.80
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.060	19.20
16	Apr 85	54	0.060	3.24
17	May 85	20	0.090	1.80
18	Jun 85	51	0.370	18.87
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.070	37.03
21	Sep 85	98	0.060	5.88
		2624	1.330	148.80

Y ave. = 131.20 N= 20.00
X ave. = 0.07
XY = 148.80
Sy = 149.985
Sx = 0.073

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = -0.124

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.040	3.36
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.040	3.60
12	Dec 84			0.00
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.070	22.40
16	Apr 85	54	0.060	3.24
17	May 85	20	0.080	1.60
18	Jun 85	51	0.190	9.69
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.060	5.88
		2624	1.170	141.30

Y ave. = 131.20 N= 20.00
X ave. = 0.06
XY = 141.30
Sy = 149.985
Sx = 0.034

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.127

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.070	22.40
16	Apr 85	54	0.060	3.24
17	May 85	20	0.080	1.60
18	Jun 85	51	0.100	5.10
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.060	5.88
		2762	1.090	139.12

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 139.12
Sy = 146.195
Sx = 0.018

Correlation Factor = $\dfrac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = -0.080

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.030	0.84
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.050	16.00
16	Apr 85	54	0.060	3.24
17	May 85	20	0.090	1.80
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.060	31.74
21	Sep 85	98	0.060	5.88
		2762	1.060	135.95

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 135.95
Sy = 146.195
Sx = 0.016

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.076

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.060	2.82
5	May 84	172	0.050	8.60
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.020	8.50
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.070	0.98
15	Mar 85	320	0.050	16.00
16	Apr 85	54	0.060	3.24
17	May 85	20	0.090	1.80
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.060	5.88
		2762	1.020	121.39

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 121.39
Sy = 146.195
Sx = 0.017

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.251

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.030	1.32
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.030	12.75
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.060	8.28
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.060	0.84
15	Mar 85	320	0.050	16.00
16	Apr 85	54	0.060	3.24
17	May 85	20	0.080	1.60
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.050	16.95
20	Aug 85	529	0.050	26.45
21	Sep 85	98	0.060	5.88
		2762	1.050	132.02

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 132.02
Sy = 146.195
Sx = 0.014

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.147

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) SILVER	Xi * Yi
1	Oct 83	44	0.040	1.76
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.050	2.35
5	May 84	172	0.050	8.60
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.040	17.00
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.020	0.56
11	Nov 84	90	0.040	3.60
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.040	4.72
14	Feb 85	14	0.070	0.98
15	Mar 85	320	0.040	12.80
16	Apr 85	54	0.060	3.24
17	May 85	20	0.090	1.80
18	Jun 85	51	0.060	3.06
19	Jul 85	339	0.040	13.56
20	Aug 85	529	0.040	21.16
21	Sep 85	98	0.060	5.88
		2762	1.050	123.25

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 123.25
Sy = 146.195
Sx = 0.016

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.321

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83	44	4.570	201.08
2	Nov 83	102	0.480	48.96
3	~~Mar 84~~ Dec 83	8	2.930	23.44
4	Apr 84	47	2.270	106.69
5	May 84	172	2.470	424.84
6	Jun 84	20	2.470	49.40
7	Jul 84	61	2.000	122.00
8	Aug 84	425	2.400	1020.00
9	Sep 84	84	1.200	100.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	0.670	92.46
13	Jan 85	118	0.110	12.98
14	Feb 85	14	0.170	2.38
15	Mar 85	320	0.970	310.40
16	Apr 85	54	0.900	48.60
17	May 85			0.00
18	Jun 85	51	0.360	18.36
19	Jul 85	339	0.440	149.16
20	Aug 85	529	1.300	687.70
21	Sep 85			0.00
		2526	25.710	3419.25

Y ave. = 148.59 N= 17.00
X ave. = 1.51
XY = 3419.25
Sy = 157.422
Sx = 1.215

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.131

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83	44	0.690	30.36
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	1.850	14.80
4	Apr 84	47	2.470	116.09
5	May 84	172	2.270	390.44
6	Jun 84	20	2.400	48.00
7	Jul 84	61	2.070	126.27
8	Aug 84	425	2.400	1020.00
9	Sep 84	84	0.530	44.52
10	Oct 84	28	0.450	12.60
11	Nov 84			0.00
12	Dec 84	138	0.900	124.20
13	Jan 85	118	0.220	25.96
14	Feb 85	14	0.240	3.36
15	Mar 85	320	1.480	473.60
16	Apr 85	54	1.000	54.00
17	May 85			0.00
18	Jun 85	51	0.170	8.67
19	Jul 85	339	0.270	91.53
20	Aug 85	529	0.550	290.95
21	Sep 85			0.00
		2554	20.960	2977.35

Y ave. = 141.89 N= 18.00
X ave. = 1.16
XY = 2977.35
Sy = 155.344
Sx = 0.859

Correlation Factor = Summmation (Xi Yi) - n Xave Yave

Sx Sy (n - 1)

Correlation Factor = 0.001

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83	44	1.280	56.32
2	Nov 83	102	0.880	89.76
3	~~Mar 84~~ Dec 83	8	0.900	7.20
4	Apr 84	47	2.400	112.80
5	May 84	172	2.130	366.36
6	Jun 84	20	2.130	42.60
7	Jul 84	61	2.330	142.13
8	Aug 84	425	2.400	1020.00
9	Sep 84	84	1.200	100.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85	118	0.420	49.56
14	Feb 85	14	0.110	1.54
15	Mar 85	320	1.480	473.60
16	Apr 85	54	1.130	61.02
17	May 85			0.00
18	Jun 85	51	0.480	24.48
19	Jul 85	339	0.490	166.11
20	Aug 85	529	1.690	894.01
21	Sep 85			0.00
		2388	21.450	3608.29

Y ave. = 149.25 N= 16.00
X ave. = 1.34
XY = 3608.29
Sy = 162.561
Sx = 0.771

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.216

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.800	183.60
3	~~Mar 84~~ Dec83	8	1.850	14.80
4	Apr 84	47	2.070	97.29
5	May 84	172	2.070	356.04
6	Jun 84	20	2.200	44.00
7	Jul 84	61	2.270	138.47
8	Aug 84	425	2.530	1075.25
9	Sep 84	84	1.000	84.00
10	Oct 84			0.00
11	Nov 84	90	0.150	13.50
12	Dec 84			0.00
13	Jan 85	118	0.340	40.12
14	Feb 85	14	0.110	1.54
15	Mar 85	320	1.160	371.20
16	Apr 85	54	1.110	59.94
17	May 85			0.00
18	Jun 85	51	0.530	27.03
19	Jul 85	339	0.340	115.26
20	Aug 85	529	0.580	306.82
21	Sep 85			0.00
		2434	20.110	2928.86

Y ave. = 152.13 N= 16.00
X ave. = 1.26
XY = 2928.86
Sy = 160.974
Sx = 0.849

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.064

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83	44	1.260	55.44
2	Nov 83	102	1.900	193.80
3	~~Mar 84~~ Dec 83	8	2.150	17.20
4	Apr 84	47	2.400	112.80
5	May 84	172	2.270	390.44
6	Jun 84	20	2.130	42.60
7	Jul 84	61	2.240	136.64
8	Aug 84	425	2.470	1049.75
9	Sep 84	84	0.730	61.32
10	Oct 84			0.00
11	Nov 84	90	0.090	8.10
12	Dec 84			0.00
13	Jan 85	118	0.340	40.12
14	Feb 85	14	0.300	4.20
15	Mar 85	320	0.710	227.20
16	Apr 85	54	1.030	55.62
17	May 85	20	0.020	0.40
18	Jun 85	51	0.660	33.66
19	Jul 85	339	0.370	125.43
20	Aug 85	529	1.050	555.45
21	Sep 85			0.00
		2498	22.120	3110.17

Y ave. = 138.78 N= 18.00
X ave. = 1.23
XY = 3110.17
Sy = 156.173
Sx = 0.881

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.017

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.400	142.80
3	~~Mar 84~~ Dec 83	8	2.150	17.20
4	Apr 84	47	2.270	106.69
5	May 84	172	2.270	390.44
6	Jun 84	20	2.000	40.00
7	Jul 84	61	2.130	129.93
8	Aug 84	425	2.600	1105.00
9	Sep 84	84	0.930	78.12
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	1.060	146.28
13	Jan 85	118	0.170	20.06
14	Feb 85	14	0.300	4.20
15	Mar 85	320	0.900	288.00
16	Apr 85	54	0.950	51.30
17	May 85			0.00
18	Jun 85	51	0.560	28.56
19	Jul 85	339	0.330	111.87
20	Aug 85	529	0.940	497.26
21	Sep 85	98	0.640	62.72
		2580	21.600	3220.43

Y ave. = 151.76 N= 17.00
X ave. = 1.27
XY = 3220.43
Sy = 155.715
Sx = 0.801

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.029

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.400	142.80
3	~~Mar 84~~ Dec 83	8	2.410	19.28
4	Apr 84	47	2.330	109.51
5	May 84	172	2.330	400.76
6	Jun 84	20	2.400	48.00
7	Jul 84	61	2.070	126.27
8	Aug 84	425	2.530	1075.25
9	Sep 84	84	1.200	100.80
10	Oct 84			0.00
11	Nov 84	90	0.360	32.40
12	Dec 84	138	1.290	178.02
13	Jan 85	118	0.220	25.96
14	Feb 85	14	0.360	5.04
15	Mar 85	320	1.480	473.60
16	Apr 85	54	1.030	55.62
17	May 85			0.00
18	Jun 85	51	0.880	44.88
19	Jul 85	339	0.140	47.46
20	Aug 85			0.00
21	Sep 85	98	0.720	70.56
		2141	23.150	2956.21

Y ave. = 125.94 N= 17.00
X ave. = 1.36
XY = 2956.21
Sy = 121.996
Sx = 0.849

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.025

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83	44	0.930	40.92
2	Nov 83	102	1.500	153.00
3	~~Mar 84~~ Dec 83	8	1.740	13.92
4	Apr 84	47	2.670	125.49
5	May 84	172	2.270	390.44
6	Jun 84	20	2.330	46.60
7	Jul 84	61	2.000	122.00
8	Aug 84	425	2.530	1075.25
9	Sep 84	84	1.100	92.40
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	1.120	154.56
13	Jan 85	118	0.280	33.04
14	Feb 85			0.00
15	Mar 85	320	1.600	512.00
16	Apr 85	54	0.620	33.48
17	May 85			0.00
18	Jun 85	51	0.830	42.33
19	Jul 85	339	0.620	210.18
20	Aug 85	529	1.730	915.17
21	Sep 85			0.00
		2512	23.870	3960.78

Y ave. = 157.00 N= 16.00
X ave. = 1.49
XY = 3960.78
Sy = 158.590
Sx = 0.739

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.121

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.500	153.00
3	~~Mar 84~~ Dec 83	8	1.850	14.80
4	Apr 84	47	2.130	100.11
5	May 84	172	2.270	390.44
6	Jun 84	20	2.000	40.00
7	Jul 84	61	2.200	134.20
8	Aug 84	425	2.530	1075.25
9	Sep 84	84	0.800	67.20
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84	138	0.950	131.10
13	Jan 85	118	0.780	92.04
14	Feb 85	14	0.300	4.20
15	Mar 85	320	2.050	656.00
16	Apr 85	54	1.080	58.32
17	May 85			0.00
18	Jun 85	51	0.560	28.56
19	Jul 85	339	0.420	142.38
20	Aug 85	529	1.900	1005.10
21	Sep 85			0.00
		2482	23.320	4092.70

Y ave. = 155.13 N= 16.00
X ave. = 1.46
XY = 4092.70
Sy = 160.184
Sx = 0.745

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.265

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) SULFIDES	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.000	102.00
3	~~Mar 84~~ Dec 83	8	2.150	17.20
4	Apr 84	47	2.000	94.00
5	May 84	172	2.270	390.44
6	Jun 84	20	2.270	45.40
7	Jul 84	61	2.400	146.40
8	Aug 84	425	2.670	1134.75
9	Sep 84	84	0.600	50.40
10	Oct 84			0.00
11	Nov 84	90	0.170	15.30
12	Dec 84	138	1.010	139.38
13	Jan 85			0.00
14	Feb 85	14	0.430	6.02
15	Mar 85	320	0.650	208.00
16	Apr 85	54	1.080	58.32
17	May 85			0.00
18	Jun 85	51	0.670	34.17
19	Jul 85	339	0.330	111.87
20	Aug 85	529	0.900	476.10
21	Sep 85	98	0.660	64.68
		2552	21.260	3094.43

Y ave. = 150.12 N= 17.00
X ave. = 1.25
XY = 3094.43
Sy = 156.242
Sx = 0.837

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.046

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83	102	30.000	3060.00
3	~~Mar 84~~ Dec 83	8	44.000	352.00
4	Apr 84	47	91.000	4277.00
5	May 84	172	96.000	16512.00
6	Jun 84	20	1.000	20.00
7	Jul 84	61	75.000	4575.00
8	Aug 84	425	10.000	4250.00
9	Sep 84	84	109.000	9156.00
10	Oct 84	28	101.000	2828.00
11	Nov 84	90	101.000	9090.00
12	Dec 84	138	47.000	6486.00
13	Jan 85	118	190.000	22420.00
14	Feb 85	14	174.000	2436.00
15	Mar 85	320	163.000	52160.00
16	Apr 85	54	192.000	10368.00
17	May 85	20	164.000	3280.00
18	Jun 85	51	16.000	816.00
19	Jul 85	339	206.000	69834.00
20	Aug 85	529	237.000	125373.00
21	Sep 85	98	1.000	98.00
		2762	2051.000	347523.00

Y ave. = 131.52 N= 21.00
X ave. = 97.67
XY = 347523.00
Sy = 146.195
Sx = 76.096

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.350

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	4.000	176.00
2	Nov 83	102	22.000	2244.00
3	~~Mar 84~~ Dec 83	8	53.000	424.00
4	Apr 84	47	113.000	5311.00
5	May 84	172	34.000	5848.00
6	Jun 84	20	4.000	80.00
7	Jul 84	61	98.000	5978.00
8	Aug 84	425	4.000	1700.00
9	Sep 84	84	128.000	10752.00
10	Oct 84	28	15.000	420.00
11	Nov 84	90	28.000	2520.00
12	Dec 84	138	133.000	18354.00
13	Jan 85	118	157.000	18526.00
14	Feb 85	14	185.000	2590.00
15	Mar 85	320	150.000	48000.00
16	Apr 85	54	230.000	12420.00
17	May 85			0.00
18	Jun 85	51	39.000	1989.00
19	Jul 85	339	198.000	67122.00
20	Aug 85	529	217.000	114793.00
21	Sep 85	98	8.000	784.00
		2742	1820.000	320031.00

Y ave. = 137.10 N= 20.00
X ave. = 91.00
XY = 320031.00
Sy = 147.684
Sx = 78.968

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = 0.318

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83	102	15.000	1530.00
3	~~Mar 84~~ Dec 83	8	45.000	360.00
4	Apr 84	47	95.000	4465.00
5	May 84	172	25.000	4300.00
6	Jun 84	20	89.000	1780.00
7	Jul 84	61	90.000	5490.00
8	Aug 84			0.00
9	Sep 84	84	146.000	12264.00
10	Oct 84	28	15.000	420.00
11	Nov 84	90	36.000	3240.00
12	Dec 84			0.00
13	Jan 85	118	191.000	22538.00
14	Feb 85	14	123.000	1722.00
15	Mar 85	320	149.000	47680.00
16	Apr 85	54	110.000	5940.00
17	May 85			0.00
18	Jun 85	51	45.000	2295.00
19	Jul 85	339	169.000	57291.00
20	Aug 85	529	248.000	131192.00
21	Sep 85	98	33.000	3234.00
		2179	1627.000	305873.00

Y ave. = 121.06 N= 18.00
X ave. = 90.39
XY = 305873.00
Sy = 138.666
Sx = 69.787

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.662

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	10.000	440.00
2	Nov 83	102	18.000	1836.00
3	~~Mar 84~~ Dec 83	8	72.000	576.00
4	Apr 84	47	114.000	5358.00
5	May 84	172	104.000	17888.00
6	Jun 84	20	97.000	1940.00
7	Jul 84	61	84.000	5124.00
8	Aug 84	425	6.000	2550.00
9	Sep 84	84	140.000	11760.00
10	Oct 84	28	9.000	252.00
11	Nov 84	90	28.000	2520.00
12	Dec 84			0.00
13	Jan 85	118	200.000	23600.00
14	Feb 85			0.00
15	Mar 85	320	197.000	63040.00
16	Apr 85	54	188.000	10152.00
17	May 85	20	156.000	3120.00
18	Jun 85	51	11.000	561.00
19	Jul 85	339	206.000	69834.00
20	Aug 85	529	237.000	125373.00
21	Sep 85	98	33.000	3234.00
		2610	1910.000	349158.00

Y ave. = 137.37 N= 19.00
X ave. = 100.53
XY = 349158.00
Sy = 151.467
Sx = 79.122

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.402

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	4.000	176.00
2	Nov 83	102	32.000	3264.00
3	~~Mar 84~~ Dec 83	8	81.000	648.00
4	Apr 84	47	9.000	423.00
5	May 84	172	53.000	9116.00
6	Jun 84	20	161.000	3220.00
7	Jul 84	61	96.000	5856.00
8	Aug 84	425	11.000	4675.00
9	Sep 84	84	126.000	10584.00
10	Oct 84	28	94.000	2632.00
11	Nov 84	90	24.000	2160.00
12	Dec 84			0.00
13	Jan 85	118	96.000	11328.00
14	Feb 85	14	42.000	588.00
15	Mar 85	320	141.000	45120.00
16	Apr 85	54	208.000	11232.00
17	May 85	20	227.000	4540.00
18	Jun 85	51	44.000	2244.00
19	Jul 85	339	238.000	80682.00
20	Aug 85	529	249.000	131721.00
21	Sep 85	98	44.000	4312.00
		2624	1980.000	334521.00

Y ave. = 131.20 N= 20.00
X ave. = 99.00
XY = 334521.00
Sy = 149.985
Sx = 80.521

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.326

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	7.000	308.00
2	Nov 83	102	33.000	3366.00
3	~~Mar 84~~ Dec 83	8	69.000	552.00
4	Apr 84	47	16.000	752.00
5	May 84	172	34.000	5848.00
6	Jun 84	20	118.000	2360.00
7	Jul 84	61	98.000	5978.00
8	Aug 84	425	3.000	1275.00
9	Sep 84	84	141.000	11844.00
10	Oct 84	28	25.000	700.00
11	Nov 84	90	19.000	1710.00
12	Dec 84	138	44.000	6072.00
13	Jan 85	118	132.000	15576.00
14	Feb 85	14	209.000	2926.00
15	Mar 85	320	217.000	69440.00
16	Apr 85	54	245.000	13230.00
17	May 85	20	218.000	4360.00
18	Jun 85	51	45.000	2295.00
19	Jul 85	339	192.000	65088.00
20	Aug 85	529	248.000	131192.00
21	Sep 85	98	39.000	3822.00
		2762	2152.000	348694.00

Y ave. = 131.52 N= 21.00
X ave. = 102.48
XY = 348694.00
Sy = 146.195
Sx = 86.827

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.259

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83	102	23.000	2346.00
3	~~Mar 84~~ Dec 83	8	70.000	560.00
4	Apr 84	47	13.000	611.00
5	May 84	172	59.000	10148.00
6	Jun 84	20	168.000	3360.00
7	Jul 84	61	95.000	5795.00
8	Aug 84	425	6.000	2550.00
9	Sep 84	84	156.000	13104.00
10	Oct 84	28	7.000	196.00
11	Nov 84	90	56.000	5040.00
12	Dec 84	138	47.000	6486.00
13	Jan 85	118	135.000	15930.00
14	Feb 85	14	124.000	1736.00
15	Mar 85	320	128.000	40960.00
16	Apr 85	54	157.000	8478.00
17	May 85	20	201.000	4020.00
18	Jun 85	51	38.000	1938.00
19	Jul 85	339	242.000	82038.00
20	Aug 85	529	240.000	126960.00
21	Sep 85	98	48.000	4704.00
		2762	2016.000	337092.00

Y ave. = 131.52 N= 21.00
X ave. = 96.00
XY = 337092.00
Sy = 146.195
Sx = 76.653

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.321

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	2.000	88.00
2	Nov 83	102	23.000	2346.00
3	~~Mar 84~~ Dec 83	8	83.000	664.00
4	Apr 84	47	7.000	329.00
5	May 84	172	56.000	9632.00
6	Jun 84	20	120.000	2400.00
7	Jul 84	61	89.000	5429.00
8	Aug 84	425	7.000	2975.00
9	Sep 84	84	96.000	8064.00
10	Oct 84	28	3.000	84.00
11	Nov 84	90	35.000	3150.00
12	Dec 84	138	29.000	4002.00
13	Jan 85	118	146.000	17228.00
14	Feb 85	14	139.000	1946.00
15	Mar 85	320	157.000	50240.00
16	Apr 85	54	207.000	11178.00
17	May 85	20	151.000	3020.00
18	Jun 85	51	43.000	2193.00
19	Jul 85	339	227.000	76953.00
20	Aug 85	529	207.000	109503.00
21	Sep 85	98	24.000	2352.00
		2762	1851.000	313776.00

Y ave. = 131.52 N= 21.00
X ave. = 88.14
XY = 313776.00
Sy = 146.195
Sx = 73.775

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.326

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	1.000	44.00
2	Nov 83	102	30.000	3060.00
3	~~Mar 84~~ Dec 83	8	63.000	504.00
4	Apr 84	47	42.000	1974.00
5	May 84	172	34.000	5848.00
6	Jun 84	20	132.000	2640.00
7	Jul 84	61	90.000	5490.00
8	Aug 84	425	9.000	3825.00
9	Sep 84	84	100.000	8400.00
10	Oct 84	28	18.000	504.00
11	Nov 84	90	39.000	3510.00
12	Dec 84	138	34.000	4692.00
13	Jan 85	118	100.000	11800.00
14	Feb 85	14	184.000	2576.00
15	Mar 85	320	181.000	57920.00
16	Apr 85	54	210.000	11340.00
17	May 85	20	241.000	4820.00
18	Jun 85	51	42.000	2142.00
19	Jul 85	339	237.000	80343.00
20	Aug 85	529	212.000	112148.00
21	Sep 85	98	50.000	4900.00
		2762	2049.000	328480.00

Y ave. = 131.52 N= 21.00
X ave. = 97.57
XY = 328480.00
Sy = 146.195
Sx = 80.823

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.250

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) SUSPENDED SOLIDS	Xi * Yi
1	Oct 83	44	2.000	88.00
2	Nov 83	102	2.000	204.00
3	~~Mar 84~~ Dec 83	8	64.000	512.00
4	Apr 84	47	4.000	188.00
5	May 84	172	24.000	4128.00
6	Jun 84	20	38.000	760.00
7	Jul 84	61	81.000	4941.00
8	Aug 84	425	5.000	2125.00
9	Sep 84	84	110.000	9240.00
10	Oct 84	28	17.000	476.00
11	Nov 84	90	31.000	2790.00
12	Dec 84	138	3.000	414.00
13	Jan 85	118	124.000	14632.00
14	Feb 85	14	205.000	2870.00
15	Mar 85	320	214.000	68480.00
16	Apr 85	54	216.000	11664.00
17	May 85	20	156.000	3120.00
18	Jun 85	51	45.000	2295.00
19	Jul 85	339	206.000	69834.00
20	Aug 85	529	216.000	114264.00
21	Sep 85	98	38.000	3724.00
		2762	1801.000	316749.00

Y ave. = 131.52 N= 21.00
X ave. = 85.76
XY = 316749.00
Sy = 146.195
Sx = 83.180

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.328

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	37.100	1632.40
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	1.400	65.80
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84			0.00
11	Nov 84	90	0.900	81.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	5.000	1600.00
16	Apr 85			0.00
17	May 85	20	4.000	80.00
18	Jun 85	51	2.000	102.00
19	Jul 85	339	3.000	1017.00
20	Aug 85	529	0.540	285.66
21	Sep 85			0.00
		1524	54.640	4922.66

Y ave. = 169.33 N= 9.00
X ave. = 6.07
XY = 4922.66
Sy = 180.762
Sx = 11.738

Correlation Factor = $\frac{\text{Summmation (Xi Yi) - n Xave Yave}}{\text{Sx Sy (n - 1)}}$

Correlation Factor = -0.255

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	6.200	272.80
2	Nov 83	102	4.200	428.40
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	1.400	65.80
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	1.200	100.80
10	Oct 84	28	0.800	22.40
11	Nov 84	90	0.400	36.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85	54	5.700	307.80
17	May 85	20	6.000	120.00
18	Jun 85			0.00
19	Jul 85	339	5.000	1695.00
20	Aug 85			0.00
21	Sep 85			0.00
		808	30.900	3049.00

Y ave. = 89.78 N= 9.00
X ave. = 3.43
XY = 3049.00
Sy = 97.587
Sx = 2.441

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.144

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	6.200	272.80
2	Nov 83	102	4.600	469.20
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	0.700	120.40
6	Jun 84	20	2.200	44.00
7	Jul 84	61	1.100	67.10
8	Aug 84			0.00
9	Sep 84	84	1.200	100.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85	54	3.800	205.20
17	May 85	20	2.000	40.00
18	Jun 85	51	4.000	204.00
19	Jul 85	339	3.000	1017.00
20	Aug 85			0.00
21	Sep 85			0.00
		947	28.800	2540.50

Y ave. = 94.70 N= 10.00
X ave. = 2.88
XY = 2540.50
Sy = 96.757
Sx = 1.766

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.121

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	21.700	954.80
2	Nov 83	102	0.600	61.20
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	0.700	120.40
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	10.000	3200.00
16	Apr 85	54	7.600	410.40
17	May 85	20	1.000	20.00
18	Jun 85	51	6.000	306.00
19	Jul 85	339	4.000	1356.00
20	Aug 85			0.00
21	Sep 85			0.00
		1186	52.300	6487.60

Y ave. = 131.78 N= 9.00
X ave. = 5.81
XY = 6487.60
Sy = 120.379
Sx = 6.884

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.061

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	29.200	1284.80
2	Nov 83	102	1.900	193.80
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84			0.00
5	May 84	172	0.700	120.40
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	10.000	3200.00
16	Apr 85	54	1.800	97.20
17	May 85			0.00
18	Jun 85	51	3.000	153.00
19	Jul 85	339	3.000	1017.00
20	Aug 85			0.00
21	Sep 85			0.00
		1166	50.300	6125.00

Y ave. = 145.75 N= 8.00
X ave. = 6.29
XY = 6125.00
Sy = 120.637
Sx = 9.726

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.147

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.500	153.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.900	42.30
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85			0.00
16	Apr 85	54	3.800	205.20
17	May 85	20	0.400	8.00
18	Jun 85	51	2.000	102.00
19	Jul 85	339	3.000	1017.00
20	Aug 85			0.00
21	Sep 85			0.00
		697	12.300	1586.30

Y ave. = 99.57 N= 7.00
X ave. = 1.76
XY = 1586.30
Sy = 108.862
Sx = 1.261

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.439

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	1.900	193.80
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.900	42.30
5	May 84	172	1.100	189.20
6	Jun 84	20	1.700	34.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	1.000	320.00
16	Apr 85	54	7.600	410.40
17	May 85	20	6.000	120.00
18	Jun 85	51	4.000	204.00
19	Jul 85	339	2.000	678.00
20	Aug 85			0.00
21	Sep 85	98	1.200	117.60
		1307	28.100	2368.10

Y ave. = 118.82 N= 11.00
X ave. = 2.55
XY = 2368.10
Sy = 112.783
Sx = 2.311

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.372

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83			0.00
2	Nov 83	102	0.600	61.20
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.500	23.50
5	May 84	172	1.100	189.20
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84			0.00
10	Oct 84			0.00
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	14.000	4480.00
16	Apr 85	54	3.800	205.20
17	May 85	20	1.000	20.00
18	Jun 85	51	4.000	204.00
19	Jul 85	339	6.000	2034.00
20	Aug 85			0.00
21	Sep 85			0.00
		1105	31.000	7217.10

Y ave. = 138.13 N= 8.00
X ave. = 3.88
XY = 7217.10
Sy = 126.946
Sx = 4.553

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.725

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	3.000	132.00
2	Nov 83			0.00
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.900	42.30
5	May 84			0.00
6	Jun 84			0.00
7	Jul 84			0.00
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84	28	0.800	22.40
11	Nov 84	90	4.200	378.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	10.000	3200.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	3.000	153.00
19	Jul 85	339	6.000	2034.00
20	Aug 85			0.00
21	Sep 85			0.00
		1003	28.600	6020.50

Y ave. = 125.38 N= 8.00
X ave. = 3.58
XY = 6020.50
Sy = 127.759
Sx = 3.192

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.853

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) TURBIDITY	Xi * Yi
1	Oct 83	44	5.200	228.80
2	Nov 83	102	4.600	469.20
3	~~Mar 84~~ Dec 83			0.00
4	Apr 84	47	0.900	42.30
5	May 84			0.00
6	Jun 84	20	2.200	44.00
7	Jul 84	61	1.500	91.50
8	Aug 84			0.00
9	Sep 84	84	0.700	58.80
10	Oct 84	28	0.400	11.20
11	Nov 84			0.00
12	Dec 84			0.00
13	Jan 85			0.00
14	Feb 85			0.00
15	Mar 85	320	5.000	1600.00
16	Apr 85			0.00
17	May 85			0.00
18	Jun 85	51	2.000	102.00
19	Jul 85	339	6.000	2034.00
20	Aug 85			0.00
21	Sep 85			0.00
		1096	28.500	4681.80

Y ave. = 109.60 N= 10.00
X ave. = 2.85
XY = 4681.80
Sy = 118.467
Sx = 2.122

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.689

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-01

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.050	2.20
2	Nov 83	102	0.050	5.10
3	~~Mar 84~~ Dec 83	8	0.050	0.40
4	Apr 84	47	0.030	1.41
5	May 84	172	0.060	10.32
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.090	2.52
11	Nov 84	90	0.090	8.10
12	Dec 84	138	0.050	6.90
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.090	4.86
17	May 85	20	4.900	98.00
18	Jun 85	51	0.120	6.12
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.090	47.61
21	Sep 85	98	0.070	6.86
		2762	6.040	260.81

Y ave. = 131.52 N= 21.00
X ave. = 0.29
XY = 260.81
Sy = 146.195
Sx = 1.057

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.173

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-02

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.430	43.86
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.030	1.41
5	May 84	172	0.060	10.32
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.040	2.44
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.060	1.68
11	Nov 84	90	0.070	6.30
12	Dec 84	138	0.020	2.76
13	Jan 85	118	0.010	1.18
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.040	12.80
16	Apr 85	54	0.070	3.78
17	May 85	20	0.050	1.00
18	Jun 85	51	0.190	9.69
19	Jul 85	339	0.030	10.17
20	Aug 85	529	0.090	47.61
21	Sep 85	98	0.070	6.86
		2762	1.570	200.61

Y ave. = 131.52 N= 21.00
X ave. = 0.07
XY = 200.61
Sy = 146.195
Sx = 0.090

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.022

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-03

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.060	2.64
2	Nov 83	102	0.130	13.26
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84	47	0.030	1.41
5	May 84	172	0.060	10.32
6	Jun 84	20	0.030	0.60
7	Jul 84	61	0.040	2.44
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.070	6.30
12	Dec 84			0.00
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.070	3.78
17	May 85	20	16.000	320.00
18	Jun 85	51	0.120	6.12
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2624	17.110	472.02

Y ave. = 131.20 N= 20.00
X ave. = 0.86
XY = 472.02
Sy = 149.985
Sx = 3.565

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.175

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-04

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.050	2.20
2	Nov 83	102	0.140	14.28
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.030	1.41
5	May 84	172	0.050	8.60
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.060	5.40
12	Dec 84			0.00
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.040	12.80
16	Apr 85	54	0.070	3.78
17	May 85	20	0.050	1.00
18	Jun 85	51	0.110	5.61
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.090	47.61
21	Sep 85	98	0.070	6.86
		2624	1.170	163.70

Y ave. = 131.20 N= 20.00
X ave. = 0.06
XY = 163.70
Sy = 149.985
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = 0.118

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-05

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.140	6.16
2	Nov 83	102	0.120	12.24
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.030	1.41
5	May 84	172	0.060	10.32
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.050	3.05
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.050	4.20
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.060	5.40
12	Dec 84			0.00
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.070	3.78
17	May 85	20	1.310	26.20
18	Jun 85	51	0.110	5.61
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.060	5.88
		2624	2.460	177.92

Y ave. = 131.20 N= 20.00
X ave. = 0.12
XY = 177.92
Sy = 149.985
Sx = 0.281

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.181

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-06

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.050	2.20
2	Nov 83	102	0.120	12.24
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.050	2.35
5	May 84	172	0.060	10.32
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.060	5.04
10	Oct 84	28	0.050	1.40
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.040	5.52
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.040	0.56
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.070	3.78
17	May 85	20	0.050	1.00
18	Jun 85	51	0.140	7.14
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2762	1.230	162.59

Y ave. = 131.52 N= 21.00
X ave. = 0.06
XY = 162.59
Sy = 146.195
Sx = 0.030

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = 0.009

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-07

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.210	9.24
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84	47	0.040	1.88
5	May 84	172	0.060	10.32
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.080	34.00
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.050	4.50
12	Dec 84	138	0.030	4.14
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.070	3.78
17	May 85	20	0.040	0.80
18	Jun 85	51	0.130	6.63
19	Jul 85	339	0.030	10.17
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2762	1.300	165.78

Y ave. = 131.52 N= 21.00
X ave. = 0.06
XY = 165.78
Sy = 146.195
Sx = 0.043

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.042

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-08

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.040	1.76
2	Nov 83	102	0.060	6.12
3	~~Mar 84~~ Dec 83	8	0.060	0.48
4	Apr 84	47	0.040	1.88
5	May 84	172	0.050	8.60
6	Jun 84	20	0.020	0.40
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.060	25.50
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.060	5.40
12	Dec 84	138	0.030	4.14
13	Jan 85	118	0.020	2.36
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.020	6.40
16	Apr 85	54	0.070	3.78
17	May 85	20	0.060	1.20
18	Jun 85	51	0.120	6.12
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2762	1.100	141.46

Y ave. = 131.52 N= 21.00
X ave. = 0.05
XY = 141.46
Sy = 146.195
Sx = 0.024

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.045

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-09

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.140	6.16
2	Nov 83	102	0.070	7.14
3	~~Mar 84~~ Dec 83	8	0.070	0.56
4	Apr 84	47	0.040	1.88
5	May 84	172	0.070	12.04
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.070	6.30
12	Dec 84	138	0.030	4.14
13	Jan 85	118	0.130	15.34
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.020	6.40
16	Apr 85	54	0.070	3.78
17	May 85	20	0.050	1.00
18	Jun 85	51	0.120	6.12
19	Jul 85	339	0.020	6.78
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2762	1.350	168.13

Y ave. = 131.52 N= 21.00
X ave. = 0.06
XY = 168.13
Sy = 146.195
Sx = 0.034

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - \text{n Xave Yave}}{\text{Sx Sy (n - 1)}}$$

Correlation Factor = -0.094

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

CORRELATION ANALYSIS
RW-10

N	Month	(Yi) Tons/month	(Xi) ZINC	Xi * Yi
1	Oct 83	44	0.110	4.84
2	Nov 83	102	0.090	9.18
3	~~Mar 84~~ Dec 83	8	0.090	0.72
4	Apr 84	47	0.040	1.88
5	May 84	172	0.050	8.60
6	Jun 84	20	0.010	0.20
7	Jul 84	61	0.060	3.66
8	Aug 84	425	0.070	29.75
9	Sep 84	84	0.070	5.88
10	Oct 84	28	0.040	1.12
11	Nov 84	90	0.080	7.20
12	Dec 84	138	0.020	2.76
13	Jan 85	118	0.130	15.34
14	Feb 85	14	0.050	0.70
15	Mar 85	320	0.030	9.60
16	Apr 85	54	0.070	3.78
17	May 85	20	0.050	1.00
18	Jun 85	51	0.140	7.14
19	Jul 85	339	0.030	10.17
20	Aug 85	529	0.080	42.32
21	Sep 85	98	0.070	6.86
		2762	1.380	172.70

Y ave. = 131.52 N= 21.00
X ave. = 0.07
XY = 172.70
Sy = 146.195
Sx = 0.034

$$\text{Correlation Factor} = \frac{\text{Summmation (Xi Yi)} - n\ \text{Xave Yave}}{\text{Sx Sy}\ (n - 1)}$$

Correlation Factor = -0.089

Y ave. = Average of Yi
X ave. = Average of Xi
XY = Summation (XiYi)
Sy = Standard Deviation of Yi
Sx = Standard Deviation of Xi
n = Number of events

ENGINEERING REPORT APPENDIX
VOLUME IV

WATER QUALITY STUDY
AT THE
U. S. ATLANTIC FLEET WEAPONS TRAINING FACILITY

VIEQUES ISLAND, PUERTO RICO

DEPARTMENT OF THE NAVY
ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND

CONTRACT N62470-87-C-9009
(A & E COMMISSION NO. 1735C)

SEPTEMBER 1990

TABLE OF CONTENTS

VOLUME IV

ENGINEERING REPORT APPENDIX

APPENDIX

4. NATURAL BACKGROUND CONCENTRATION (NBC) DETERMINATIONS.

NBC DETERMINATION
RW-01

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83	0.030	0.030
Nov 83	0.210	0.210
Dec 83	0.040	0.040
Jan 84	0.150	0.150
Feb 84	0.040	0.040
Mar 84	0.180	0.180
Apr 84	0.600	
May 84	0.050	0.050
Jun 84	0.260	0.260
Jul 84	0.140	0.140
Aug 84	0.050	0.050
Sep 84	0.050	0.050
Oct 84	0.030	0.030
Nov 84	0.080	0.080
Dec 84	0.010	0.010
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85	0.020	0.020
Apr 85	0.070	0.070
May 85		
Jun 85	0.010	0.010
Jul 85	0.010	0.010
Aug 85	0.040	0.040
Sep 85	0.290	0.290
	2.390	1.790

X ave. = 0.104
Sx = 0.136
Arpos = 0.371
Arneg = -0.163
NBC = 0.081

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.280	
Dec 83		
Jan 84	0.120	0.120
Feb 84	0.030	0.030
Mar 84	0.040	0.040
Apr 84	0.270	
May 84	0.050	0.050
Jun 84	0.100	0.100
Jul 84	0.100	0.100
Aug 84	0.040	0.040
Sep 84	0.020	0.020
Oct 84	0.020	0.020
Nov 84	0.040	0.040
Dec 84	0.010	0.010
Jan 85	0.010	0.010
Feb 85	0.030	0.030
Mar 85	0.010	0.010
Apr 85	0.040	0.040
May 85		
Jun 85	0.020	0.020
Jul 85	0.010	0.010
Aug 85	0.030	0.030
Sep 85	0.130	0.130
	1.400	0.850

X ave. = 0.067
Sx = 0.078
Arpos = 0.220
Arneg = -0.087
NBC = 0.045

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.270	
Dec 83		
Jan 84	0.140	0.140
Feb 84	0.040	0.040
Mar 84	0.030	0.030
Apr 84	0.200	
May 84	0.040	0.040
Jun 84	0.090	0.090
Jul 84	0.080	0.080
Aug 84	0.020	0.020
Sep 84	0.020	0.020
Oct 84	0.020	0.020
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85	0.010	0.010
Apr 85	0.060	0.060
May 85		
Jun 85	0.020	0.020
Jul 85	0.020	0.020
Aug 85	0.020	0.020
Sep 85	0.100	0.100
	1.250	0.780

X ave. = 0.063
Sx = 0.069
Arpos = 0.198
Arneg = -0.073
NBC = 0.043

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.170	
Dec 83		
Jan 84	0.160	0.160
Feb 84	0.020	0.020
Mar 84	0.030	0.030
Apr 84	0.180	
May 84	0.030	0.030
Jun 84	0.090	0.090
Jul 84	0.090	0.090
Aug 84	0.030	0.030
Sep 84	0.020	0.020
Oct 84	0.050	0.050
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.010	0.010
Feb 85	0.030	0.030
Mar 85	0.010	0.010
Apr 85	0.060	0.060
May 85	0.010	0.010
Jun 85	0.010	0.010
Jul 85	0.010	0.010
Aug 85	0.020	0.020
Sep 85	0.090	0.090
	1.160	0.810

X ave. = 0.055
Sx = 0.055
Arpos = 0.163
Arneg = -0.052
NBC = 0.043

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.270	
Dec 83		
Jan 84	0.270	
Feb 84	0.070	0.070
Mar 84	0.010	0.010
Apr 84	0.080	0.080
May 84	0.150	0.150
Jun 84	0.070	0.070
Jul 84	0.070	0.070
Aug 84	0.020	0.020
Sep 84	0.020	0.020
Oct 84	0.020	0.020
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85	0.010	0.010
Apr 85	0.040	0.040
May 85	0.010	0.010
Jun 85	0.010	0.010
Jul 85	0.010	0.010
Aug 85	0.020	0.020
Sep 85	0.070	0.070
	1.290	0.750

X ave. = 0.061
Sx = 0.078
Arpos = 0.214
Arneg = -0.091
NBC = 0.039

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.370	
Dec 83		
Jan 84	0.170	0.170
Feb 84	0.040	0.040
Mar 84	0.010	0.010
Apr 84	0.040	0.040
May 84	0.080	0.080
Jun 84	0.050	0.050
Jul 84	0.100	0.100
Aug 84	0.030	0.030
Sep 84	0.020	0.020
Oct 84	0.020	0.020
Nov 84	0.020	0.020
Dec 84	0.020	0.020
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85	0.010	0.010
Apr 85	0.060	0.060
May 85		
Jun 85	0.030	0.030
Jul 85	0.020	0.020
Aug 85		
Sep 85	0.060	0.060
	1.180	0.810

X ave. = 0.059
Sx = 0.083
Arpos = 0.221
Arneg = -0.103
NBC = 0.043

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.120	0.120
Dec 83		
Jan 84	0.280	
Feb 84	0.030	0.030
Mar 84	0.010	0.010
Apr 84	0.040	0.040
May 84	0.060	0.060
Jun 84	0.050	0.050
Jul 84	0.060	0.060
Aug 84	0.020	0.020
Sep 84	0.020	0.020
Oct 84	0.010	0.010
Nov 84	0.040	0.040
Dec 84	0.010	0.010
Jan 85	0.020	0.020
Feb 85	0.020	0.020
Mar 85	0.010	0.010
Apr 85	0.060	0.060
May 85		
Jun 85	0.020	0.020
Jul 85	0.010	0.010
Aug 85	0.010	0.010
Sep 85	0.060	0.060
	0.960	0.680

X ave. = 0.046
Sx = 0.060
Arpos = 0.164
Arneg = -0.072
NBC = 0.034

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.150	0.150
Dec 83		
Jan 84	0.270	
Feb 84	0.040	0.040
Mar 84	0.010	0.010
Apr 84	0.030	0.030
May 84	0.040	0.040
Jun 84	0.040	0.040
Jul 84	0.140	0.140
Aug 84	0.020	0.020
Sep 84	0.010	0.010
Oct 84	0.010	0.010
Nov 84	0.040	0.040
Dec 84	0.010	0.010
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85	0.010	0.010
Apr 85	0.060	0.060
May 85		
Jun 85	0.010	0.010
Jul 85	0.020	0.020
Aug 85	0.010	0.010
Sep 85	0.050	0.050
	1.000	0.730

X ave. = 0.048
Sx = 0.064
Arpos = 0.174
Arneg = -0.078
NBC = 0.037

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.320	
Dec 83		
Jan 84	0.320	
Feb 84	0.050	0.050
Mar 84	0.010	0.010
Apr 84	0.030	0.030
May 84	0.060	0.060
Jun 84	0.030	0.030
Jul 84	0.080	0.080
Aug 84	0.020	0.020
Sep 84	0.020	0.020
Oct 84	0.010	0.010
Nov 84	0.020	0.020
Dec 84	0.010	0.010
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85		
Apr 85	0.060	0.060
May 85		
Jun 85	0.010	0.010
Jul 85	0.010	0.010
Aug 85		
Sep 85	0.050	0.050
	1.140	0.500

X ave. = 0.060
Sx = 0.094
Arpos = 0.244
Arneg = -0.124
NBC = 0.029

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) AMMONIA	(Xar) (Acceptance Range) AMMONIA
Oct 83		
Nov 83	0.110	0.110
Dec 83		
Jan 84	0.620	
Feb 84	0.040	0.040
Mar 84	0.010	0.010
Apr 84	0.030	0.030
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.070	0.070
Aug 84	0.020	0.020
Sep 84	0.020	0.020
Oct 84	0.010	0.010
Nov 84	0.020	0.020
Dec 84	0.010	0.010
Jan 85	0.010	0.010
Feb 85	0.020	0.020
Mar 85		
Apr 85	0.050	0.050
May 85	0.010	0.010
Jun 85		
Jul 85	0.020	0.020
Aug 85		
Sep 85	0.050	0.050
	1.210	0.590

X ave. = 0.064
Sx = 0.137
Arpos = 0.332
Arneg = -0.205
NBC = 0.033

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.043	0.043
Nov 83	0.047	0.047
Dec 83	0.025	0.025
Jan 84	0.003	0.003
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85	0.005	0.005
Sep 85		
	0.123	0.123

X ave. = 0.025
Sx = 0.021
Arpos = 0.065
Arneg = -0.016
NBC = 0.025

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.054	0.054
Nov 83	0.082	0.082
Dec 83	0.022	0.022
Jan 84	0.036	0.036
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.194	0.194

X ave. = 0.049
Sx = 0.026
Arpos = 0.099
Arneg = -0.002
NBC = 0.049

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.030	0.030
Nov 83	0.138	0.138
Dec 83	0.037	0.037
Jan 84	0.027	0.027
Feb 84		
Mar 84	0.003	0.003
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.235	0.235

X ave. = 0.047
Sx = 0.052
Arpos = 0.150
Arneg = -0.056
NBC = 0.047

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.029	0.029
Nov 83	0.059	0.059
Dec 83	0.062	0.062
Jan 84	0.016	0.016
Feb 84		
Mar 84		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.166	0.166

X ave. = 0.042
Sx = 0.023
Arpos = 0.086
Arneg = -0.003
NBC = 0.042

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) Arsenic	(Xar) (Acceptance Range) Arsenic
Oct 83	0.027	0.027
Nov 83	0.064	0.064
Dec 83	0.033	0.033
Jan 84	0.038	0.038
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.162	0.162

X ave. = 0.041
Sx = 0.016
Arpos = 0.072
Arneg = 0.009
NBC = 0.041

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.016	0.016
Nov 83	0.066	0.066
Dec 83	0.038	0.038
Jan 84	0.003	0.003
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85	0.003	0.003
Sep 85		
	0.126	0.126

X ave. = 0.025
Sx = 0.027
Arpos = 0.078
Arneg = -0.028
NBC = 0.025

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.033	0.033
Nov 83	0.049	0.049
Dec 83	0.018	0.018
Jan 84	0.008	0.008
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85	0.006	0.006
Sep 85		
	0.114	0.114

X ave. = 0.023
Sx = 0.018
Arpos = 0.058
Arneg = -0.013
NBC = 0.023

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.042	0.042
Nov 83	0.057	0.057
Dec 83	0.080	0.080
Jan 84	0.011	
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.190	0.179

X ave. = 0.048
Sx = 0.029
Arpos = 0.104
Arneg = -0.009
NBC = 0.060

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.054	0.054
Nov 83	0.164	0.164
Dec 83	0.016	0.016
Jan 84	0.018	0.018
Feb 84		
Mar 84	0.003	0.003
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85	0.004	0.004
Sep 85		
	0.259	0.259

X ave. = 0.043
Sx = 0.062
Arpos = 0.165
Arneg = -0.078
NBC = 0.043

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) ARSENIC	(Xar) (Acceptance Range) ARSENIC
Oct 83	0.056	0.056
Nov 83	0.063	0.063
Dec 83	0.020	0.020
Jan 84	0.009	0.009
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.148	0.148

X ave. = 0.037
Sx = 0.027
Arpos = 0.089
Arneg = -0.015
NBC = 0.037

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.080	0.080
Nov 83	0.090	0.090
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85	0.110	0.110
Aug 85	0.130	0.130
Sep 85		
	0.410	0.410

X ave. = 0.103
Sx = 0.022
Arpos = 0.146
Arneg = 0.059
NBC = 0.103

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.070	0.070
Nov 83	0.140	0.140
Dec 83	0.130	0.130
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85	0.110	0.110
Aug 85	0.120	0.120
Sep 85		
	0.570	0.570

X ave. = 0.114
Sx = 0.027
Arpos = 0.167
Arneg = 0.061
NBC = 0.114

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.110	0.110
Nov 83	0.090	0.090
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85	0.110	0.110
Aug 85	0.110	0.110
Sep 85		
	0.420	0.420

X ave. = 0.105
Sx = 0.010
Arpos = 0.125
Arneg = 0.085
NBC = 0.105

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.070	0.070
Nov 83	0.190	0.190
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84	0.050	0.050
Dec 84		
Jan 85		
Feb 85		
Mar 85	0.050	0.050
Apr 85		
May 85		
Jun 85		
Jul 85	0.110	0.110
Aug 85	0.110	0.110
Sep 85		
	0.580	0.580

X ave. = 0.097
Sx = 0.053
Arpos = 0.201
Arneg = -0.008
NBC = 0.097

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83		
Nov 83		
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84	0.050	0.050
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.050	0.050
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.330	0.330

X ave. = 0.083
Sx = 0.038
Arpos = 0.156
Arneg = 0.009
NBC = 0.083

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.100	0.100
Nov 83	0.090	0.090
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.050	0.050
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.470	0.470

X ave. = 0.094
Sx = 0.027
Arpos = 0.147
Arneg = 0.041
NBC = 0.094

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.090	0.090
Nov 83	0.190	0.190
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.050	0.050
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.560	0.560

X ave. = 0.112
Sx = 0.051
Arpos = 0.212
Arneg = 0.012
NBC = 0.112

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83		
Nov 83	0.090	0.090
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.050	0.050
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.370	0.370

X ave. = 0.093
Sx = 0.031
Arpos = 0.153
Arneg = 0.032
NBC = 0.093

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83		
Nov 83	0.090	0.090
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.050	0.050
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.370	0.370

X ave. = 0.093
Sx = 0.031
Arpos = 0.153
Arneg = 0.032
NBC = 0.093

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) BARIUM	(Xar) (Acceptance Range) BARIUM
Oct 83	0.100	0.100
Nov 83	0.140	0.140
Dec 83	0.080	0.080
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84	0.050	0.050
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.060	0.060
Jul 85	0.120	0.120
Aug 85	0.110	0.110
Sep 85		
	0.660	0.660

X ave. = 0.094
Sx = 0.033
Arpos = 0.158
Arneg = 0.030
NBC = 0.094

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.870	
Nov 83	0.710	
Dec 83	3.340	3.340
Jan 84	3.550	3.550
Feb 84		
Mar 84	8.300	8.300
Apr 84	5.930	5.930
May 84	4.840	4.840
Jun 84	7.080	7.080
Jul 84	4.440	4.440
Aug 84	4.770	4.770
Sep 84	7.190	7.190
Oct 84	6.000	6.000
Nov 84	6.890	6.890
Dec 84	5.950	5.950
Jan 85	6.260	6.260
Feb 85	4.710	4.710
Mar 85	4.120	4.120
Apr 85	5.150	5.150
May 85	8.800	
Jun 85	4.520	4.520
Jul 85	4.060	4.060
Aug 85	5.370	5.370
Sep 85	5.020	5.020
	117.870	107.490

X ave. = 5.125
Sx = 1.964
Arpos = 8.974
Arneg = 1.275
NBC = 5.375

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.870	0.870
Nov 83	0.670	0.670
Dec 83	0.860	0.860
Jan 84	0.960	0.960
Feb 84	0.070	0.070
Mar 84	4.700	4.700
Apr 84	6.230	6.230
May 84	10.610	
Jun 84	5.180	5.180
Jul 84	6.090	6.090
Aug 84	5.520	5.520
Sep 84	7.850	7.850
Oct 84	8.300	8.300
Nov 84	5.450	5.450
Dec 84	5.160	5.160
Jan 85	4.230	4.230
Feb 85	7.530	7.530
Mar 85	3.690	3.690
Apr 85	3.030	3.030
May 85	1.900	1.900
Jun 85	4.910	4.910
Jul 85	3.850	3.850
Aug 85	5.120	5.120
Sep 85	5.180	5.180
	107.960	97.350

X ave. = 4.498
Sx = 2.678
Arpos = 9.747
Arneg = -0.750
NBC = 4.233

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.430	0.430
Nov 83	0.900	0.900
Dec 83	0.860	0.860
Jan 84	0.980	0.980
Feb 84	0.130	0.130
Mar 84	6.940	6.940
Apr 84	6.310	6.310
May 84	5.830	5.830
Jun 84	8.300	8.300
Jul 84	8.700	8.700
Aug 84	5.110	5.110
Sep 84	6.450	6.450
Oct 84	8.000	8.000
Nov 84	7.800	7.800
Dec 84		
Jan 85	6.160	6.160
Feb 85	5.990	5.990
Mar 85	4.020	4.020
Apr 85	1.900	1.900
May 85	10.390	10.390
Jun 85	4.780	4.780
Jul 85	9.530	9.530
Aug 85	4.530	4.530
Sep 85	4.710	4.710
	118.750	118.750

X ave. = 5.163
Sx = 3.065
Arpos = 11.170
Arneg = -0.844
NBC = 5.163

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	1.000	1.000
Nov 83	0.660	0.660
Dec 83	1.300	1.300
Jan 84	1.150	1.150
Feb 84	0.290	0.290
Mar 84	4.980	4.980
Apr 84	5.770	5.770
May 84	4.740	4.740
Jun 84	6.500	6.500
Jul 84	6.740	6.740
Aug 84	5.170	5.170
Sep 84	7.540	7.540
Oct 84	12.200	12.200
Nov 84	6.700	6.700
Dec 84		
Jan 85	6.760	6.760
Feb 85	6.560	6.560
Mar 85	7.690	7.690
Apr 85		
May 85	6.020	6.020
Jun 85	4.250	4.250
Jul 85	14.300	
Aug 85	8.040	8.040
Sep 85	4.800	4.800
	123.160	108.860

X ave. = 5.598
Sx = 3.484
Arpos = 12.427
Arneg = -1.231
NBC = 5.184

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.510	0.510
Nov 83	0.650	0.650
Dec 83	1.500	1.500
Jan 84	1.270	1.270
Feb 84	0.530	0.530
Mar 84	5.480	5.480
Apr 84	6.020	6.020
May 84	9.900	
Jun 84	5.600	5.600
Jul 84	4.180	4.180
Aug 84	5.320	5.320
Sep 84	6.450	6.450
Oct 84	7.390	7.390
Nov 84	5.450	5.450
Dec 84		0.000
Jan 85	6.450	6.450
Feb 85	6.030	6.030
Mar 85	5.020	5.020
Apr 85	2.460	2.460
May 85	6.560	6.560
Jun 85	4.780	4.780
Jul 85	7.900	7.900
Aug 85	3.910	3.910
Sep 85	4.300	4.300
	107.660	97.760

X ave. = 4.681
Sx = 2.518
Arpos = 9.616
Arneg = -0.255
NBC = 4.250

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.650	0.650
Nov 83	0.680	0.680
Dec 83	0.920	0.920
Jan 84	0.860	0.860
Feb 84	0.210	0.210
Mar 84	4.830	4.830
Apr 84	4.470	4.470
May 84	18.670	
Jun 84	6.820	6.820
Jul 84	6.090	6.090
Aug 84	4.800	4.800
Sep 84	7.500	7.500
Oct 84	5.100	5.100
Nov 84	5.760	5.760
Dec 84	4.230	4.230
Jan 85	7.040	7.040
Feb 85	5.960	5.960
Mar 85	4.130	4.130
Apr 85	5.580	5.580
May 85	3.280	3.280
Jun 85	3.990	3.990
Jul 85	6.280	6.280
Aug 85	4.810	4.810
Sep 85	5.300	5.300
	117.960	99.290

X ave. = 4.915
Sx = 3.643
Arpos = 12.055
Arneg = -2.225
NBC = 4.317

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.650	0.650
Nov 83	0.450	0.450
Dec 83	1.170	1.170
Jan 84	1.370	1.370
Feb 84	0.310	0.310
Mar 84	4.480	4.480
Apr 84	6.730	6.730
May 84	15.130	
Jun 84	6.150	6.150
Jul 84	4.180	4.180
Aug 84	5.110	5.110
Sep 84	8.230	8.230
Oct 84	5.740	5.740
Nov 84	7.420	7.420
Dec 84	6.260	6.260
Jan 85	5.160	5.160
Feb 85	4.870	4.870
Mar 85	8.390	8.390
Apr 85	8.980	8.980
May 85	8.800	8.800
Jun 85	5.440	5.440
Jul 85	4.300	4.300
Aug 85	4.750	4.750
Sep 85	5.240	5.240
	129.310	114.180

X ave. = 5.388
Sx = 3.328
Arpos = 11.911
Arneg = -1.136
NBC = 4.964

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.930	0.930
Nov 83	0.520	0.520
Dec 83	0.920	0.920
Jan 84	0.550	0.550
Feb 84		
Mar 84	4.860	4.860
Apr 84	7.110	7.110
May 84	25.880	
Jun 84	6.150	6.150
Jul 84	3.210	3.210
Aug 84	6.020	6.020
Sep 84	7.500	7.500
Oct 84	6.070	6.070
Nov 84	5.570	5.570
Dec 84	6.230	6.230
Jan 85	5.730	5.730
Feb 85	3.930	3.930
Mar 85	8.390	8.390
Apr 85	9.540	9.540
May 85	5.190	5.190
Jun 85	5.170	5.170
Jul 85	6.780	6.780
Aug 85	12.900	12.900
Sep 85	5.650	5.650
	144.800	118.920

X ave. = 6.296
Sx = 5.177
Arpos = 16.442
Arneg = -3.851
NBC = 5.405

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.450	0.450
Nov 83	0.710	0.710
Dec 83	6.300	6.300
Jan 84	5.710	5.710
Feb 84	0.110	0.110
Mar 84	4.050	4.050
Apr 84	6.730	6.730
May 84	17.110	
Jun 84	5.880	5.880
Jul 84	3.790	3.790
Aug 84	5.860	5.860
Sep 84	7.190	7.190
Oct 84	7.040	7.040
Nov 84	5.070	5.070
Dec 84	5.480	5.480
Jan 85	5.950	5.950
Feb 85	5.340	5.340
Mar 85	4.800	4.800
Apr 85	4.730	4.730
May 85	0.500	0.500
Jun 85	5.040	5.040
Jul 85	9.690	9.690
Aug 85	4.470	4.470
Sep 85	5.930	5.930
	127.930	110.820

X ave. = 5.330
Sx = 3.425
Arpos = 12.044
Arneg = -1.383
NBC = 4.818

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) BORON	(Xar) (Acceptance Range) BORON
Oct 83	0.700	0.700
Nov 83	0.460	0.460
Dec 83	2.300	2.300
Jan 84	2.790	2.790
Feb 84	0.090	0.090
Mar 84	4.670	4.670
Apr 84	6.600	6.600
May 84	5.200	5.200
Jun 84	5.940	5.940
Jul 84	3.920	3.920
Aug 84	5.580	5.580
Sep 84	5.360	5.360
Oct 84	6.490	6.490
Nov 84	5.040	5.040
Dec 84	6.260	6.260
Jan 85	6.010	6.010
Feb 85	6.240	6.240
Mar 85	4.020	4.020
Apr 85	5.290	5.290
May 85	3.550	3.550
Jun 85	4.650	4.650
Jul 85	10.760	
Aug 85	5.680	5.680
Sep 85	6.810	6.810
	114.410	103.650

X ave. = 4.767
Sx = 2.339
Arpos = 9.352
Arneg = 0.182
NBC = 4.507

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.102	0.102
Nov 83	0.090	0.090
Dec 83	0.079	0.079
Jan 84	0.116	0.116
Feb 84	0.120	0.120
Mar 84	0.115	0.115
Apr 84	0.090	0.090
May 84	0.085	0.085
Jun 84	0.055	0.055
Jul 84	0.100	0.100
Aug 84	0.135	0.135
Sep 84	0.074	0.074
Oct 84	0.069	0.069
Nov 84	0.102	0.102
Dec 84	0.028	0.028
Jan 85	0.023	
Feb 85	0.082	0.082
Mar 85	0.113	0.113
Apr 85	0.090	0.090
May 85	0.111	0.111
Jun 85		
Jul 85	0.051	0.051
Aug 85	0.139	0.139
Sep 85	0.067	0.067
	2.036	2.013

X ave. = 0.089
Sx = 0.030
Arpos = 0.148
Arneg = 0.029
NBC = 0.092

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.095	0.095
Nov 83	0.091	0.091
Dec 83	0.081	0.081
Jan 84	0.115	0.115
Feb 84	0.123	0.123
Mar 84	0.117	0.117
Apr 84	0.084	0.084
May 84	0.087	0.087
Jun 84	0.044	0.044
Jul 84	0.100	0.100
Aug 84	0.132	0.132
Sep 84	0.078	0.078
Oct 84	0.071	0.071
Nov 84	0.105	0.105
Dec 84	0.023	
Jan 85	0.022	
Feb 85	0.084	0.084
Mar 85	0.113	0.113
Apr 85	0.090	0.090
May 85	0.110	0.110
Jun 85		
Jul 85	0.044	0.044
Aug 85	0.132	0.132
Sep 85	0.067	0.067
	2.008	1.963

X ave. = 0.087
Sx = 0.031
Arpos = 0.149
Arneg = 0.026
NBC = 0.093

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.095	0.095
Nov 83	0.090	0.090
Dec 83	0.072	0.072
Jan 84	0.115	0.115
Feb 84	0.130	0.130
Mar 84	0.106	0.106
Apr 84	0.081	0.081
May 84	0.080	0.080
Jun 84	0.053	0.053
Jul 84	0.081	0.081
Aug 84	0.137	0.137
Sep 84	0.076	0.076
Oct 84	0.071	0.071
Nov 84	0.102	0.102
Dec 84		
Jan 85	0.031	
Feb 85	0.084	0.084
Mar 85	0.119	0.119
Apr 85	0.093	0.093
May 85	0.117	0.117
Jun 85		
Jul 85	0.057	0.057
Aug 85	0.131	0.131
Sep 85	0.066	0.066
	1.987	1.956

X ave. = 0.090
Sx = 0.027
Arpos = 0.144
Arneg = 0.037
NBC = 0.093

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.091	0.091
Nov 83	0.094	0.094
Dec 83	0.075	0.075
Jan 84	0.122	0.122
Feb 84	0.132	0.132
Mar 84	0.092	0.092
Apr 84	0.081	0.081
May 84	0.083	0.083
Jun 84	0.048	0.048
Jul 84	0.098	0.098
Aug 84	0.130	0.130
Sep 84	0.076	0.076
Oct 84	0.071	0.071
Nov 84	0.102	0.102
Dec 84		
Jan 85	0.031	0.031
Feb 85	0.082	0.082
Mar 85	0.116	0.116
Apr 85	0.088	0.088
May 85	0.109	0.109
Jun 85	0.014	
Jul 85	0.053	0.053
Aug 85	0.131	0.131
Sep 85	0.069	0.069
	1.988	1.974

X ave. = 0.086
Sx = 0.031
Arpos = 0.147
Arneg = 0.026
NBC = 0.090

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.091	0.091
Nov 83	0.090	0.090
Dec 83	0.078	0.078
Jan 84	0.116	0.116
Feb 84	0.137	0.137
Mar 84	0.047	0.047
Apr 84	0.084	0.084
May 84	0.081	0.081
Jun 84	0.053	0.053
Jul 84	0.091	0.091
Aug 84	0.114	0.114
Sep 84	0.067	0.067
Oct 84	0.066	0.066
Nov 84	0.102	0.102
Dec 84		
Jan 85	0.033	0.033
Feb 85	0.084	0.084
Mar 85	0.113	0.113
Apr 85	0.090	0.090
May 85	0.109	0.109
Jun 85	0.014	
Jul 85	0.049	0.049
Aug 85	0.124	0.124
Sep 85	0.075	0.075
	1.908	1.894

X ave. = 0.083
Sx = 0.030
Arpos = 0.142
Arneg = 0.024
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.088	0.088
Nov 83	0.091	0.091
Dec 83	0.068	0.068
Jan 84	0.116	0.116
Feb 84	0.137	0.137
Mar 84	0.113	0.113
Apr 84	0.084	0.084
May 84	0.083	0.083
Jun 84	0.055	0.055
Jul 84	0.100	0.100
Aug 84	0.082	0.082
Sep 84	0.760	
Oct 84	0.690	
Nov 84	0.102	0.102
Dec 84	0.034	0.034
Jan 85	0.031	0.031
Feb 85	0.079	0.079
Mar 85	0.108	0.108
Apr 85	0.088	0.088
May 85	0.109	0.109
Jun 85	0.016	0.016
Jul 85	0.047	0.047
Aug 85	0.130	0.130
Sep 85	0.066	0.066
	3.277	1.827

X ave. = 0.137
Sx = 0.184
Arpos = 0.497
Arneg = -0.224
NBC = 0.083

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.088	0.088
Nov 83	0.091	0.091
Dec 83	0.078	0.078
Jan 84	0.109	0.109
Feb 84	0.137	0.137
Mar 84	0.115	0.115
Apr 84	0.084	0.084
May 84	0.083	0.083
Jun 84	0.042	0.042
Jul 84	0.102	0.102
Aug 84	0.132	0.132
Sep 84	0.780	
Oct 84	0.071	0.071
Nov 84	0.105	0.105
Dec 84	0.033	0.033
Jan 85	0.033	0.033
Feb 85	0.084	0.084
Mar 85	0.119	0.119
Apr 85	0.088	0.088
May 85	0.109	0.109
Jun 85	0.020	0.020
Jul 85	0.051	0.051
Aug 85	0.130	0.130
Sep 85	0.067	0.067
	2.751	1.971

X ave. = 0.115
Sx = 0.145
Arpos = 0.400
Arneg = -0.170
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.079	0.079
Nov 83	0.094	0.094
Dec 83	0.075	0.075
Jan 84	0.121	0.121
Feb 84	0.137	0.137
Mar 84	0.078	0.078
Apr 84	0.086	0.086
May 84	0.085	0.085
Jun 84	0.048	0.048
Jul 84	0.097	0.097
Aug 84	0.095	0.095
Sep 84	0.078	0.078
Oct 84	0.069	0.069
Nov 84	0.105	0.105
Dec 84	0.033	0.033
Jan 85	0.033	0.033
Feb 85	0.082	0.082
Mar 85	0.094	0.094
Apr 85	0.090	0.090
May 85	0.109	0.109
Jun 85	0.021	
Jul 85	0.044	0.044
Aug 85	0.130	0.130
Sep 85	0.064	0.064
	1.947	1.926

X ave. = 0.081
Sx = 0.030
Arpos = 0.140
Arneg = 0.023
NBC = 0.084

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.084	0.084
Nov 83	0.091	0.091
Dec 83	0.078	0.078
Jan 84	0.110	0.110
Feb 84	0.137	0.137
Mar 84	0.103	0.103
Apr 84	0.088	0.088
May 84	0.083	0.083
Jun 84	0.046	0.046
Jul 84	0.098	0.098
Aug 84	0.106	0.106
Sep 84	0.760	
Oct 84	0.064	0.064
Nov 84	0.105	0.105
Dec 84	0.027	0.027
Jan 85	0.027	0.027
Feb 85	0.084	0.084
Mar 85	0.095	0.095
Apr 85	0.090	0.090
May 85	0.107	0.107
Jun 85	0.059	0.059
Jul 85	0.046	0.046
Aug 85	0.131	0.131
Sep 85	0.069	0.069
	2.688	1.928

X ave. = 0.112
Sx = 0.141
Arpos = 0.388
Arneg = -0.164
NBC = 0.084

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) CADMIUM	(Xar) (Acceptance Range) CADMIUM
Oct 83	0.091	0.091
Nov 83	0.090	0.090
Dec 83	0.081	0.081
Jan 84	0.106	0.106
Feb 84	0.137	0.137
Mar 84	0.101	0.101
Apr 84	0.081	0.081
May 84	0.083	0.083
Jun 84	0.048	0.048
Jul 84	0.098	0.098
Aug 84	0.114	0.114
Sep 84	0.760	
Oct 84	0.069	0.069
Nov 84	0.107	0.107
Dec 84	0.033	0.033
Jan 85	0.033	0.033
Feb 85	0.082	0.082
Mar 85	0.083	0.083
Apr 85	0.093	0.093
May 85	0.107	0.107
Jun 85	0.019	0.019
Jul 85	0.047	0.047
Aug 85	0.119	0.119
Sep 85	0.071	0.071
	2.653	1.893

X ave. = 0.111
Sx = 0.141
Arpos = 0.388
Arneg = -0.167
NBC = 0.082

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83	0.010	0.010
Jan 84	2.000	2.000
Feb 84	4.000	4.000
Mar 84	11.000	11.000
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	10.000	10.000
Jul 85		
Aug 85		
Sep 85		
	27.010	27.010

X ave. = 5.402
Sx = 4.876
Arpos = 14.958
Arneg = -4.154
NBC = 5.402

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	2.000	2.000
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	7.000	7.000
Jul 85		
Aug 85		
Sep 85		
	9.000	9.000

X ave. = 4.500
Sx = 3.536
Arpos = 11.430
Arneg = -2.430
NBC = 4.500

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83	8.000	8.000
Dec 83		
Jan 84	5.000	5.000
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	10.000	10.000
Jul 85		
Aug 85		
Sep 85		
	23.000	23.000

X ave. = 7.667
Sx = 2.517
Arpos = 12.599
Arneg = 2.734
NBC = 7.667

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	2.000	2.000
Feb 84		
Mar 84		
Apr 84	7.000	7.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	13.000	13.000
Jul 85		
Aug 85		
Sep 85		
	22.000	22.000

X ave. = 7.333
Sx = 5.508
Arpos = 18.128
Arneg = -3.462
NBC = 7.333

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83	2.000	2.000
Jan 84	3.000	3.000
Feb 84		
Mar 84		
Apr 84	2.000	2.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	15.000	15.000
Jul 85		
Aug 85		
Sep 85		
	22.000	22.000

X ave. = 5.500
Sx = 6.351
Arpos = 17.948
Arneg = -6.948
NBC = 5.500

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83	2.000	2.000
Jan 84	2.000	2.000
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	7.000	7.000
Jul 85		
Aug 85		
Sep 85		
	11.000	11.000

X ave. = 3.667
Sx = 2.887
Arpos = 9.325
Arneg = -1.991
NBC = 3.667

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	2.000	2.000
Feb 84		
Mar 84		
Apr 84	2.000	2.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	7.000	7.000
Jul 85		
Aug 85		
Sep 85		
	11.000	11.000

X ave. = 3.667
Sx = 2.887
Arpos = 9.325
Arneg = -1.991
NBC = 3.667

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	5.000	5.000
Feb 84		
Mar 84		
Apr 84	3.000	3.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	11.000	11.000
Jul 85		
Aug 85		
Sep 85		
	19.000	19.000

X ave. = 6.333
Sx = 4.163
Arpos = 14.493
Arneg = -1.827
NBC = 6.333

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	3.000	3.000
Feb 84	2.000	2.000
Mar 84		
Apr 84	5.000	5.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	13.000	13.000
Jul 85		
Aug 85		
Sep 85		
	23.000	23.000

X ave. = 5.750
Sx = 4.992
Arpos = 15.534
Arneg = -4.034
NBC = 5.750

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) CHROMIUM, HEXAVALENT	(Xar) (Acceptance Range) CHROMIUM,
Oct 83		
Nov 83		
Dec 83		
Jan 84	2.000	2.000
Feb 84	2.000	2.000
Mar 84		
Apr 84	7.000	7.000
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	10.000	10.000
Jul 85		
Aug 85		
Sep 85		
	21.000	21.000

X ave. = 5.250
Sx = 3.948
Arpos = 12.987
Arneg = -2.487
NBC = 5.250

X ave. = Average of Xi
Sx = Standard Deviation of Xi
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.090	0.090
Nov 83	0.070	0.070
Dec 83	0.060	0.060
Jan 84	0.070	0.070
Feb 84		
Mar 84	0.060	0.060
Apr 84		
May 84	0.060	0.060
Jun 84		
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.040	0.040
Oct 84	0.040	0.040
Nov 84	0.050	0.050
Dec 84		
Jan 85	0.040	0.040
Feb 85	0.080	0.080
Mar 85	0.100	0.100
Apr 85	0.050	0.050
May 85	0.110	
Jun 85	0.040	0.040
Jul 85	0.040	0.040
Aug 85	0.040	0.040
Sep 85	0.040	0.040
	1.180	1.070

X ave. = 0.059
Sx = 0.022
Arpos = 0.102
Arneg = 0.016
NBC = 0.056

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.060	0.060
Nov 83	0.070	0.070
Dec 83	0.040	0.040
Jan 84	0.070	0.070
Feb 84		
Mar 84	0.070	0.070
Apr 84		
May 84	0.060	0.060
Jun 84	0.050	0.050
Jul 84	0.070	0.070
Aug 84	0.070	0.070
Sep 84	0.040	0.040
Oct 84	0.040	0.040
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.040	0.040
Feb 85	0.090	0.090
Mar 85	0.100	0.100
Apr 85	0.050	0.050
May 85	0.110	
Jun 85	0.040	0.040
Jul 85	0.040	0.040
Aug 85	0.050	0.050
Sep 85	0.040	0.040
	1.240	1.130

X ave. = 0.059
Sx = 0.021
Arpos = 0.101
Arneg = 0.018
NBC = 0.057

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.080	0.080
Nov 83	0.070	0.070
Dec 83	0.050	0.050
Jan 84	0.080	0.080
Feb 84		
Mar 84	0.060	0.060
Apr 84		
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.040	0.040
Aug 84	0.050	0.050
Sep 84	0.040	0.040
Oct 84	0.430	
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.050	0.050
Feb 85	0.080	0.080
Mar 85	0.100	0.100
Apr 85	0.040	0.040
May 85	0.100	0.100
Jun 85	0.040	0.040
Jul 85	0.040	0.040
Aug 85	0.040	0.040
Sep 85		
	1.520	1.090

X ave. = 0.076
Sx = 0.086
Arpos = 0.244
Arneg = -0.092
NBC = 0.057

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.070	0.070
Nov 83	0.070	0.070
Dec 83	0.050	0.050
Jan 84	0.080	0.080
Feb 84	0.020	0.020
Mar 84	0.050	0.050
Apr 84		
May 84	0.060	0.060
Jun 84	0.040	0.040
Jul 84	0.050	0.050
Aug 84	0.050	0.050
Sep 84	0.040	0.040
Oct 84	0.040	0.040
Nov 84	0.050	0.050
Dec 84		
Jan 85	0.050	0.050
Feb 85	0.090	0.090
Mar 85	0.100	0.100
Apr 85	0.060	0.060
May 85	0.120	
Jun 85	0.040	0.040
Jul 85		
Aug 85	0.040	0.040
Sep 85		
	1.170	1.050

X ave. = 0.059
Sx = 0.024
Arpos = 0.105
Arneg = 0.012
NBC = 0.055

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.070	0.070
Nov 83	0.060	0.060
Dec 83	0.020	0.020
Jan 84	0.070	0.070
Feb 84	0.020	0.020
Mar 84		
Apr 84		
May 84	0.050	0.050
Jun 84	0.060	0.060
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.040	0.040
Oct 84	0.040	0.040
Nov 84	0.050	0.050
Dec 84		
Jan 85	0.060	0.060
Feb 85	0.090	0.090
Mar 85	0.090	0.090
Apr 85	0.060	0.060
May 85	0.110	
Jun 85	0.040	0.040
Jul 85	0.040	0.040
Aug 85	0.040	0.040
Sep 85		
	1.110	1.000

X ave. = 0.056
Sx = 0.023
Arpos = 0.100
Arneg = 0.011
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.070	0.070
Nov 83	0.060	0.060
Dec 83	0.030	0.030
Jan 84	0.090	0.090
Feb 84	0.020	0.020
Mar 84	0.060	0.060
Apr 84		
May 84	0.060	0.060
Jun 84	0.060	0.060
Jul 84	0.070	0.070
Aug 84	0.040	0.040
Sep 84	0.040	0.040
Oct 84	0.030	0.030
Nov 84	0.050	0.050
Dec 84	0.040	0.040
Jan 85	0.060	0.060
Feb 85	0.090	0.090
Mar 85	0.090	0.090
Apr 85	0.060	0.060
May 85	0.110	
Jun 85	0.040	0.040
Jul 85		
Aug 85	0.040	0.040
Sep 85	0.060	0.060
	1.270	1.160

X ave. = 0.058
Sx = 0.023
Arpos = 0.102
Arneg = 0.013
NBC = 0.055

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.050	0.050
Nov 83	0.070	0.070
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84		
Mar 84	0.070	0.070
Apr 84		
May 84	0.050	0.050
Jun 84		
Jul 84	0.060	0.060
Aug 84	0.060	0.060
Sep 84	0.040	0.040
Oct 84	0.030	0.030
Nov 84	0.060	0.060
Dec 84	0.040	0.040
Jan 85	0.060	0.060
Feb 85	0.100	0.100
Mar 85	0.090	0.090
Apr 85	0.050	0.050
May 85	0.110	
Jun 85	0.040	0.040
Jul 85		
Aug 85	0.040	0.040
Sep 85	0.040	0.040
	1.180	1.070

X ave. = 0.059
Sx = 0.021
Arpos = 0.101
Arneg = 0.017
NBC = 0.056

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.060	0.060
Nov 83	0.070	0.070
Dec 83	0.030	0.030
Jan 84	0.090	0.090
Feb 84	0.030	0.030
Mar 84	0.040	0.040
Apr 84		
May 84	0.050	0.050
Jun 84		
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.040	0.040
Oct 84	0.040	0.040
Nov 84	0.060	0.060
Dec 84	0.040	0.040
Jan 85	0.050	0.050
Feb 85	0.090	0.090
Mar 85	0.070	0.070
Apr 85	0.060	0.060
May 85	0.110	
Jun 85	0.040	0.040
Jul 85		
Aug 85	0.040	0.040
Sep 85	0.040	0.040
	1.150	1.040

X ave. = 0.055
Sx = 0.021
Arpos = 0.097
Arneg = 0.013
NBC = 0.052

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.060	0.060
Nov 83	0.070	0.070
Dec 83	0.030	0.030
Jan 84	0.060	0.060
Feb 84	0.020	0.020
Mar 84	0.060	0.060
Apr 84		
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.070	0.070
Aug 84	0.040	0.040
Sep 84		
Oct 84	0.040	0.040
Nov 84	0.050	0.050
Dec 84	0.040	0.040
Jan 85	0.050	0.050
Feb 85	0.100	
Mar 85	0.070	0.070
Apr 85	0.060	0.060
May 85	0.110	
Jun 85		
Jul 85	0.040	0.040
Aug 85	0.040	0.040
Sep 85		
	1.100	0.890

X ave. = 0.055
Sx = 0.022
Arpos = 0.098
Arneg = 0.012
NBC = 0.049

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) CHROMIUM, TOTAL	(Xar) (Acceptance Range) CHROMIUM,
Oct 83	0.060	0.060
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.020	0.020
Mar 84	0.060	0.060
Apr 84		
May 84	0.060	0.060
Jun 84		
Jul 84	0.070	0.070
Aug 84	0.050	0.050
Sep 84		
Oct 84	0.030	0.030
Nov 84	0.050	0.050
Dec 84	0.040	0.040
Jan 85	0.060	0.060
Feb 85	0.100	
Mar 85	0.070	0.070
Apr 85	0.060	0.060
May 85	0.110	
Jun 85	0.040	0.040
Jul 85	0.050	0.050
Aug 85	0.040	0.040
Sep 85	0.040	0.040
	1.190	0.980

X ave. = 0.057
Sx = 0.021
Arpos = 0.097
Arneg = 0.016
NBC = 0.052

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	2.000	
Oct 84	1.000	1.000
Nov 84		
Dec 84	1.000	1.000
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	24.000	22.000

X ave. = 1.043
Sx = 0.209
Arpos = 1.452
Arneg = 0.635
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	3.000	
Oct 84	1.000	1.000
Nov 84		
Dec 84	1.000	1.000
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	25.000	22.000

X ave. = 1.087
Sx = 0.417
Arpos = 1.904
Arneg = 0.270
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	2.000	
Oct 84	2.000	
Nov 84		
Dec 84		
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	24.000	20.000

X ave. = 1.091
Sx = 0.294
Arpos = 1.668
Arneg = 0.514
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	2.000	
Oct 84	1.000	1.000
Nov 84		
Dec 84		
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	23.000	21.000

X ave. = 1.045
Sx = 0.213
Arpos = 1.463
Arneg = 0.628
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	
Nov 83	1.000	
Dec 83	1.000	
Jan 84	1.000	
Feb 84	1.000	
Mar 84	1.000	
Apr 84	1.000	
May 84	1.000	
Jun 84	1.000	
Jul 84	1.000	
Aug 84	1.000	
Sep 84	1.000	
Oct 84	1.000	
Nov 84		
Dec 84		
Jan 85	1.000	
Feb 85	1.000	
Mar 85	1.000	
Apr 85	1.000	
May 85	1.000	
Jun 85	1.000	
Jul 85	1.000	
Aug 85	1.000	
Sep 85	1.000	
	22.000	0.000

X ave. = 1.000
Sx = 0.000
Arpos = 1.000
Arneg = 1.000
NBC = ~~0.000~~ 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	
Nov 83	1.000	
Dec 83	1.000	
Jan 84	1.000	
Feb 84	1.000	
Mar 84	1.000	
Apr 84	1.000	
May 84	1.000	
Jun 84	1.000	
Jul 84	1.000	
Aug 84	1.000	
Sep 84	1.000	
Oct 84	1.000	
Nov 84		
Dec 84	1.000	
Jan 85	1.000	
Feb 85	1.000	
Mar 85	1.000	
Apr 85	1.000	
May 85	1.000	
Jun 85	1.000	
Jul 85	1.000	
Aug 85	1.000	
Sep 85	1.000	
	23.000	0.000

X ave. = 1.000
Sx = 0.000
Arpos = 1.000
Arneg = 1.000
NBC = ~~0.000~~ 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	2.000	
Oct 84	1.000	1.000
Nov 84		
Dec 84	1.000	1.000
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	24.000	22.000

X ave. = 1.043
Sx = 0.209
Arpos = 1.452
Arneg = 0.635
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	
Nov 83	1.000	
Dec 83	1.000	
Jan 84	1.000	
Feb 84	1.000	
Mar 84	1.000	
Apr 84	1.000	
May 84	1.000	
Jun 84	1.000	
Jul 84	1.000	
Aug 84	1.000	
Sep 84	1.000	
Oct 84	1.000	
Nov 84		
Dec 84	1.000	
Jan 85	1.000	
Feb 85	1.000	
Mar 85	1.000	
Apr 85	1.000	
May 85	1.000	
Jun 85	1.000	
Jul 85	1.000	
Aug 85	1.000	
Sep 85	1.000	
	23.000	0.000

X ave. = 1.000
Sx = 0.000
Arpos = 1.000
Arneg = 1.000
NBC = ~~0.000~~ 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	1.000
Nov 83	1.000	1.000
Dec 83	1.000	1.000
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84	1.000	1.000
Jul 84	1.000	1.000
Aug 84	1.000	1.000
Sep 84	2.000	
Oct 84	1.000	1.000
Nov 84		
Dec 84	1.000	1.000
Jan 85	1.000	1.000
Feb 85	1.000	1.000
Mar 85	1.000	1.000
Apr 85	1.000	1.000
May 85	1.000	1.000
Jun 85	1.000	1.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	1.000	1.000
	24.000	22.000

X ave. = 1.043
Sx = 0.209
Arpos = 1.452
Arneg = 0.635
NBC = 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) COLOR	(Xar) (Acceptance Range) COLOR
Oct 83	1.000	
Nov 83	1.000	
Dec 83	1.000	
Jan 84	1.000	
Feb 84	1.000	
Mar 84	1.000	
Apr 84	1.000	
May 84	1.000	
Jun 84	1.000	
Jul 84	1.000	
Aug 84	1.000	
Sep 84	1.000	
Oct 84	1.000	
Nov 84		
Dec 84	1.000	
Jan 85	1.000	
Feb 85	1.000	
Mar 85	1.000	
Apr 85	1.000	
May 85	1.000	
Jun 85	1.000	
Jul 85	1.000	
Aug 85	1.000	
Sep 85	1.000	
	23.000	0.000

X ave. = 1.000
Sx = 0.000
Arpos = 1.000
Arneg = 1.000
NBC = ~~0.000~~ 1.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.080	0.080
Nov 83	0.090	0.090
Dec 83	0.090	0.090
Jan 84	0.120	0.120
Feb 84	0.120	0.120
Mar 84	0.100	0.100
Apr 84	0.070	0.070
May 84	0.080	0.080
Jun 84	0.100	0.100
Jul 84	0.090	0.090
Aug 84	0.080	0.080
Sep 84	0.090	0.090
Oct 84	0.080	0.080
Nov 84	0.060	0.060
Dec 84	0.070	0.070
Jan 85	0.050	0.050
Feb 85	0.120	0.120
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.240	
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.160	0.160
Sep 85	0.080	0.080
	2.200	1.960

X ave. = 0.092
Sx = 0.042
Arpos = 0.173
Arneg = 0.010
NBC = 0.085

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.310	
Dec 83	0.070	0.070
Jan 84	0.140	0.140
Feb 84	0.110	0.110
Mar 84	0.100	0.100
Apr 84	0.070	0.070
May 84	0.070	0.070
Jun 84	0.090	0.090
Jul 84	0.090	0.090
Aug 84	0.080	0.080
Sep 84	0.090	0.090
Oct 84	0.080	0.080
Nov 84	0.060	0.060
Dec 84	0.060	0.060
Jan 85	0.050	0.050
Feb 85	0.110	0.110
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.160	0.160
Jun 85	0.040	0.040
Jul 85	0.070	0.070
Aug 85	0.160	0.160
Sep 85	0.070	0.070
	2.260	1.950

X ave. = 0.094
Sx = 0.056
Arpos = 0.205
Arneg = -0.017
NBC = 0.085

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.080	0.080
Nov 83	0.090	0.090
Dec 83	0.070	0.070
Jan 84	0.120	0.120
Feb 84	0.110	0.110
Mar 84	0.090	0.090
Apr 84	0.070	0.070
May 84	0.070	0.070
Jun 84	0.090	0.090
Jul 84	0.080	0.080
Aug 84	0.080	0.080
Sep 84	0.090	0.090
Oct 84	0.080	0.080
Nov 84	0.050	0.050
Dec 84		
Jan 85	0.070	0.070
Feb 85	0.100	0.100
Mar 85	0.100	0.100
Apr 85	0.030	0.030
May 85	0.190	
Jun 85	0.040	0.040
Jul 85	0.080	0.080
Aug 85	0.150	0.150
Sep 85	0.090	0.090
	2.020	1.830

X ave. = 0.088
Sx = 0.034
Arpos = 0.154
Arneg = 0.022
NBC = 0.083

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.100	0.100
Dec 83	0.080	0.080
Jan 84	0.120	0.120
Feb 84	0.120	0.120
Mar 84	0.080	0.080
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.080	0.080
Jul 84	0.100	0.100
Aug 84	0.080	0.080
Sep 84	0.090	0.090
Oct 84	0.090	0.090
Nov 84	0.070	0.070
Dec 84		
Jan 85	0.080	0.080
Feb 85	0.110	0.110
Mar 85	0.040	0.040
Apr 85	0.030	0.030
May 85	0.140	0.140
Jun 85	0.040	0.040
Jul 85	0.080	0.080
Aug 85	0.160	
Sep 85	0.090	0.090
	1.980	1.820

X ave. = 0.086
Sx = 0.031
Arpos = 0.146
Arneg = 0.026
NBC = 0.083

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.080	0.080
Nov 83	0.160	
Dec 83	0.080	0.080
Jan 84	0.130	0.130
Feb 84	0.120	0.120
Mar 84	0.030	0.030
Apr 84	0.080	0.080
May 84	0.070	0.070
Jun 84	0.080	0.080
Jul 84	0.080	0.080
Aug 84	0.080	0.080
Sep 84	0.090	0.090
Oct 84	0.080	0.080
Nov 84	0.060	0.060
Dec 84		
Jan 85	0.070	0.070
Feb 85	0.120	0.120
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.130	0.130
Jun 85	0.040	0.040
Jul 85	0.070	0.070
Aug 85	0.150	0.150
Sep 85	0.090	0.090
	2.000	1.840

X ave. = 0.087
Sx = 0.034
Arpos = 0.154
Arneg = 0.020
NBC = 0.084

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.110	0.110
Dec 83	0.070	0.070
Jan 84	0.130	0.130
Feb 84	0.120	0.120
Mar 84	0.090	0.090
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.070	0.070
Jul 84	0.090	0.090
Aug 84	0.070	0.070
Sep 84	0.070	0.070
Oct 84	0.060	0.060
Nov 84	0.040	0.040
Dec 84	0.110	0.110
Jan 85	0.090	0.090
Feb 85	0.120	0.120
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.140	0.140
Jun 85	0.070	0.070
Jul 85	0.080	0.080
Aug 85	0.130	0.130
Sep 85	0.110	0.110
	2.080	2.080

X ave. = 0.087
Sx = 0.029
Arpos = 0.143
Arneg = 0.030
NBC = 0.087

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.100	0.100
Dec 83	0.080	0.080
Jan 84	0.130	0.130
Feb 84	0.120	0.120
Mar 84	0.110	0.110
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.070	0.070
Jul 84	0.090	0.090
Aug 84	0.070	0.070
Sep 84	0.070	0.070
Oct 84	0.060	0.060
Nov 84	0.050	0.050
Dec 84	0.080	0.080
Jan 85	0.090	0.090
Feb 85	0.130	0.130
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.140	0.140
Jun 85	0.060	0.060
Jul 85	0.060	0.060
Aug 85	0.130	0.130
Sep 85	0.120	0.120
	2.070	2.070

X ave. = 0.086
Sx = 0.030
Arpos = 0.145
Arneg = 0.028
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.160	0.160
Dec 83	0.070	0.070
Jan 84	0.120	0.120
Feb 84	0.120	0.120
Mar 84	0.060	0.060
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.060	0.060
Jul 84	0.090	0.090
Aug 84	0.050	0.050
Sep 84	0.070	0.070
Oct 84	0.060	0.060
Nov 84	0.040	0.040
Dec 84	0.080	0.080
Jan 85	0.090	0.090
Feb 85	0.130	0.130
Mar 85	0.080	0.080
Apr 85	0.030	0.030
May 85	0.130	0.130
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.230	
Sep 85	0.130	0.130
	2.120	1.890

X ave. = 0.088
Sx = 0.045
Arpos = 0.176
Arneg = 0.001
NBC = 0.082

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.110	0.110
Dec 83	0.070	0.070
Jan 84	0.130	0.130
Feb 84	0.120	0.120
Mar 84	0.090	0.090
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.070	0.070
Jul 84	0.090	0.090
Aug 84	0.050	0.050
Sep 84	0.090	0.090
Oct 84	0.070	0.070
Nov 84	0.040	0.040
Dec 84	0.080	0.080
Jan 85	0.080	0.080
Feb 85	0.120	0.120
Mar 85	0.060	0.060
Apr 85	0.030	0.030
May 85	0.120	0.120
Jun 85	0.050	0.050
Jul 85	0.080	0.080
Aug 85	0.220	
Sep 85	0.110	0.110
	2.080	1.860

X ave. = 0.087
Sx = 0.039
Arpos = 0.163
Arneg = 0.010
NBC = 0.081

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) COPPER	(Xar) (Acceptance Range) COPPER
Oct 83	0.070	0.070
Nov 83	0.150	0.150
Dec 83	0.080	0.080
Jan 84	0.130	0.130
Feb 84	0.120	0.120
Mar 84	0.090	0.090
Apr 84	0.060	0.060
May 84	0.070	0.070
Jun 84	0.070	0.070
Jul 84	0.090	0.090
Aug 84	0.050	0.050
Sep 84	0.080	0.080
Oct 84	0.070	0.070
Nov 84	0.040	0.040
Dec 84	0.080	0.080
Jan 85	0.110	0.110
Feb 85	0.130	0.130
Mar 85	0.060	0.060
Apr 85	0.030	0.030
May 85	0.140	0.140
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.130	0.130
Sep 85	0.100	0.100
	2.070	2.070

X ave. = 0.086
Sx = 0.033
Arpos = 0.151
Arneg = 0.021
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	0.450
Dec 83	0.530	0.530
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.520	0.520
Apr 84	0.530	0.530
May 84	0.510	0.510
Jun 84	0.540	0.540
Jul 84	0.550	0.550
Aug 84	0.520	0.520
Sep 84	0.530	0.530
Oct 84	0.530	0.530
Nov 84	0.600	0.600
Dec 84	0.700	
Jan 85	0.520	0.520
Feb 85	0.510	0.510
Mar 85	0.560	0.560
Apr 85	0.580	0.580
May 85	0.600	0.600
Jun 85	0.570	0.570
Jul 85	0.590	0.590
Aug 85	0.610	0.610
Sep 85	0.550	0.550
	13.210	12.080

X ave. = 0.550
Sx = 0.058
Arpos = 0.663
Arneg = 0.437
NBC = 0.549

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	0.430
Nov 83	0.450	0.450
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.543	0.543
Apr 84	0.530	0.530
May 84	0.500	0.500
Jun 84	0.540	0.540
Jul 84	0.550	0.550
Aug 84	0.520	0.520
Sep 84	0.550	0.550
Oct 84	0.530	0.530
Nov 84	0.610	0.610
Dec 84	0.920	
Jan 85	0.540	0.540
Feb 85	0.510	0.510
Mar 85	0.570	0.570
Apr 85	0.620	0.620
May 85		
Jun 85	0.590	0.590
Jul 85	0.600	0.600
Aug 85	0.600	0.600
Sep 85	0.570	0.570
	13.073	12.153

X ave. = 0.568
Sx = 0.093
Arpos = 0.751
Arneg = 0.386
NBC = 0.552

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Ar eg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.543	0.543
Apr 84	0.560	0.560
May 84	0.510	0.510
Jun 84	0.560	0.560
Jul 84	0.520	0.520
Aug 84	0.520	0.520
Sep 84	0.550	0.550
Oct 84	0.560	0.560
Nov 84	0.610	0.610
Dec 84		
Jan 85	0.550	0.550
Feb 85	0.570	0.570
Mar 85	0.570	0.570
Apr 85	0.620	0.620
May 85		
Jun 85	0.590	0.590
Jul 85	0.620	0.620
Aug 85	0.630	0.630
Sep 85	0.570	0.570
	12.333	11.453

X ave. = 0.561
Sx = 0.055
Arpos = 0.668
Arneg = 0.453
NBC = 0.573

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	0.450
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.543	0.543
Apr 84	0.560	0.560
May 84	0.510	0.510
Jun 84	0.540	0.540
Jul 84	0.520	0.520
Aug 84	0.530	0.530
Sep 84	0.530	0.530
Oct 84	0.550	0.550
Nov 84	0.610	0.610
Dec 84		
Jan 85	0.550	0.550
Feb 85		
Mar 85	0.590	0.590
Apr 85	0.620	0.620
May 85	0.630	0.630
Jun 85	0.630	0.630
Jul 85	0.620	0.620
Aug 85	0.630	0.630
Sep 85	0.580	0.580
	12.423	11.993

X ave. = 0.565
Sx = 0.059
Arpos = 0.681
Arneg = 0.449
NBC = 0.571

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	
Dec 83	0.570	0.570
Jan 84	0.650	0.650
Feb 84	0.570	0.570
Mar 84	0.543	0.543
Apr 84	0.560	0.560
May 84	0.500	0.500
Jun 84	0.560	0.560
Jul 84	0.500	0.500
Aug 84	0.530	0.530
Sep 84	0.580	0.580
Oct 84	0.550	0.550
Nov 84	0.610	0.610
Dec 84		
Jan 85	0.580	0.580
Feb 85	0.540	0.540
Mar 85	0.590	0.590
Apr 85	0.640	0.640
May 85	0.640	0.640
Jun 85	0.610	0.610
Jul 85	0.640	0.640
Aug 85	0.590	0.590
Sep 85	0.580	0.580
	13.013	12.133

X ave. = 0.566
Sx = 0.057
Arpos = 0.678
Arneg = 0.453
NBC = 0.578

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	0.450
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.543	0.543
Apr 84	0.560	0.560
May 84	0.520	0.520
Jun 84	0.540	0.540
Jul 84	0.520	0.520
Aug 84	0.530	0.530
Sep 84	0.550	0.550
Oct 84	0.530	0.530
Nov 84	0.610	0.610
Dec 84	0.720	
Jan 85	0.570	0.570
Feb 85	0.570	0.570
Mar 85	0.520	0.520
Apr 85	0.640	0.640
May 85	0.660	0.660
Jun 85	0.610	0.610
Jul 85	0.640	0.640
Aug 85	0.600	0.600
Sep 85	0.580	0.580
	13.693	12.543

X ave. = 0.571
Sx = 0.067
Arpos = 0.701
Arneg = 0.440
NBC = 0.570

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	0.450
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.592	0.592
Apr 84	0.560	0.560
May 84	0.530	0.530
Jun 84	0.540	0.540
Jul 84	0.520	0.520
Aug 84	0.530	0.530
Sep 84	0.550	0.550
Oct 84	0.540	0.540
Nov 84	0.600	0.600
Dec 84	0.700	0.700
Jan 85	0.580	0.580
Feb 85	0.560	0.560
Mar 85	0.570	0.570
Apr 85	0.630	0.630
May 85	0.640	0.640
Jun 85	0.610	0.610
Jul 85	0.640	0.640
Aug 85	0.670	0.670
Sep 85	0.550	0.550
	13.792	13.362

X ave. = 0.575
Sx = 0.065
Arpos = 0.701
Arneg = 0.448
NBC = 0.581

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	
Dec 83	0.620	0.620
Jan 84	0.650	0.650
Feb 84	0.570	0.570
Mar 84	0.592	0.592
Apr 84	0.560	0.560
May 84	0.520	0.520
Jun 84	0.540	0.540
Jul 84	0.550	0.550
Aug 84	0.530	0.530
Sep 84	0.550	0.550
Oct 84	0.560	0.560
Nov 84	0.610	0.610
Dec 84	0.710	
Jan 85	0.580	0.580
Feb 85	0.580	0.580
Mar 85	0.570	0.570
Apr 85	0.640	0.640
May 85	0.660	0.660
Jun 85	0.640	0.640
Jul 85	0.640	0.640
Aug 85	0.600	0.600
Sep 85	0.550	0.550
	13.902	12.312

X ave. = 0.579
Sx = 0.064
Arpos = 0.704
Arneg = 0.455
NBC = 0.586

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	0.430
Nov 83	0.450	0.450
Dec 83	0.530	0.530
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.592	0.592
Apr 84	0.580	0.580
May 84	0.520	0.520
Jun 84	0.540	0.540
Jul 84	0.520	0.520
Aug 84	0.530	0.530
Sep 84	0.560	0.560
Oct 84	0.560	0.560
Nov 84	0.600	0.600
Dec 84	0.710	0.710
Jan 85	0.580	0.580
Feb 85	0.580	0.580
Mar 85	0.590	0.590
Apr 85	0.640	0.640
May 85	0.910	
Jun 85	0.640	0.640
Jul 85	0.620	0.620
Aug 85	0.580	0.580
Sep 85	0.550	0.550
	13.992	13.082

X ave. = 0.583
Sx = 0.093
Arpos = 0.765
Arneg = 0.401
NBC = 0.569

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) FLUORIDE	(Xar) (Acceptance Range) FLUORIDE
Oct 83	0.430	
Nov 83	0.450	0.450
Dec 83	0.570	0.570
Jan 84	0.650	0.650
Feb 84	0.530	0.530
Mar 84	0.592	0.592
Apr 84	0.580	0.580
May 84	0.520	0.520
Jun 84	0.540	0.540
Jul 84	0.550	0.550
Aug 84	0.530	0.530
Sep 84	0.560	0.560
Oct 84	0.560	0.560
Nov 84	0.610	0.610
Dec 84	0.710	0.710
Jan 85	0.570	0.570
Feb 85	0.580	0.580
Mar 85	0.570	0.570
Apr 85	0.630	0.630
May 85	0.770	
Jun 85	0.640	0.640
Jul 85	0.610	0.610
Aug 85	0.550	0.550
Sep 85	0.550	0.550
	13.852	12.652

X ave. = 0.577
Sx = 0.072
Arpos = 0.718
Arneg = 0.436
NBC = 0.575

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.530	0.530
Nov 83	0.520	0.520
Dec 83	0.330	0.330
Jan 84	1.180	
Feb 84	0.520	0.520
Mar 84	0.410	0.410
Apr 84	0.760	0.760
May 84	0.520	0.520
Jun 84	0.450	0.450
Jul 84	0.530	0.530
Aug 84	1.230	
Sep 84	0.370	0.370
Oct 84	0.460	0.460
Nov 84	0.330	0.330
Dec 84	0.270	0.270
Jan 85	0.220	0.220
Feb 85	0.610	0.610
Mar 85	0.540	0.540
Apr 85	0.550	0.550
May 85	0.470	0.470
Jun 85	0.350	0.350
Jul 85	0.270	0.270
Aug 85	0.280	0.280
Sep 85	0.190	0.190
	11.890	9.480

X ave. = 0.495
Sx = 0.257
Arpos = 0.999
Arneg = -0.009
NBC = 0.431

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.420	0.420
Nov 83	0.540	0.540
Dec 83	0.280	0.280
Jan 84	0.960	
Feb 84	0.490	0.490
Mar 84	0.410	0.410
Apr 84	0.760	0.760
May 84	0.510	0.510
Jun 84	0.430	0.430
Jul 84	0.530	0.530
Aug 84	1.180	
Sep 84	0.370	0.370
Oct 84	0.460	0.460
Nov 84	0.350	0.350
Dec 84	0.230	0.230
Jan 85	0.210	0.210
Feb 85	0.630	0.630
Mar 85	0.510	0.510
Apr 85	0.620	0.620
May 85	0.450	0.450
Jun 85	0.340	0.340
Jul 85	0.270	0.270
Aug 85	0.300	0.300
Sep 85	0.180	0.180
	11.430	9.290

X ave. = 0.476
Sx = 0.233
Arpos = 0.933
Arneg = 0.019
NBC = 0.422

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.440	0.440
Nov 83	0.540	0.540
Dec 83	0.330	0.330
Jan 84	0.910	0.910
Feb 84	0.520	0.520
Mar 84	0.340	0.340
Apr 84	0.720	0.720
May 84	0.470	0.470
Jun 84	0.430	0.430
Jul 84	0.510	0.510
Aug 84	1.190	
Sep 84	0.360	0.360
Oct 84	0.430	0.430
Nov 84	0.330	0.330
Dec 84		
Jan 85	0.330	0.330
Feb 85	0.650	0.650
Mar 85	0.510	0.510
Apr 85	0.590	0.590
May 85	0.490	0.490
Jun 85	0.330	0.330
Jul 85	0.280	0.280
Aug 85	0.300	0.300
Sep 85	0.160	0.160
	11.160	9.970

X ave. = 0.485
Sx = 0.224
Arpos = 0.923
Arneg = 0.047
NBC = 0.453

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.420	0.420
Nov 83	0.550	0.550
Dec 83	0.330	0.330
Jan 84	0.910	
Feb 84	0.480	0.480
Mar 84	0.330	0.330
Apr 84	0.720	0.720
May 84	0.480	0.480
Jun 84	0.420	0.420
Jul 84	0.520	0.520
Aug 84	1.120	
Sep 84	0.350	0.350
Oct 84	0.410	0.410
Nov 84	0.340	0.340
Dec 84		
Jan 85	0.330	0.330
Feb 85	0.240	0.240
Mar 85	0.500	0.500
Apr 85	0.660	0.660
May 85	0.440	0.440
Jun 85	0.320	0.320
Jul 85	0.300	0.300
Aug 85	0.280	0.280
Sep 85	0.190	0.190
	10.640	8.610

X ave. = 0.463
Sx = 0.218
Arpos = 0.889
Arneg = 0.036
NBC = 0.410

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.410	0.410
Nov 83	0.510	0.510
Dec 83	0.330	0.330
Jan 84	0.970	
Feb 84	0.460	0.460
Mar 84	0.180	0.180
Apr 84	0.740	0.740
May 84	0.470	0.470
Jun 84	0.420	0.420
Jul 84	0.510	0.510
Aug 84	0.980	
Sep 84	0.350	0.350
Oct 84	0.420	0.420
Nov 84	0.320	0.320
Dec 84		
Jan 85	0.310	0.310
Feb 85	0.600	0.600
Mar 85	0.510	0.510
Apr 85	0.450	0.450
May 85	0.460	0.460
Jun 85	0.310	0.310
Jul 85	0.290	0.290
Aug 85	0.300	0.300
Sep 85	0.190	0.190
	10.490	8.540

X ave. = 0.456
Sx = 0.207
Arpos = 0.861
Arneg = 0.051
NBC = 0.407

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.420	0.420
Nov 83	0.520	0.520
Dec 83	0.320	0.320
Jan 84	1.040	
Feb 84	0.520	0.520
Mar 84	0.400	0.400
Apr 84	0.740	0.740
May 84	0.480	0.480
Jun 84	0.420	0.420
Jul 84	0.530	0.530
Aug 84	1.100	
Sep 84	0.340	0.340
Oct 84	0.410	0.410
Nov 84	0.360	0.360
Dec 84	0.320	0.320
Jan 85	0.320	0.320
Feb 85	0.610	0.610
Mar 85	0.470	0.470
Apr 85	0.520	0.520
May 85	0.480	0.480
Jun 85	0.340	0.340
Jul 85	0.260	0.260
Aug 85	0.300	0.300
Sep 85	0.170	0.170
	11.390	9.250

X ave. = 0.475
Sx = 0.220
Arpos = 0.906
Arneg = 0.043
NBC = 0.420

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.370	0.370
Nov 83	0.520	0.520
Dec 83	0.330	0.330
Jan 84	0.990	
Feb 84	0.480	0.480
Mar 84	0.380	0.380
Apr 84	0.700	0.700
May 84	0.510	0.510
Jun 84	0.430	0.430
Jul 84	0.540	0.540
Aug 84	1.200	
Sep 84	0.350	0.350
Oct 84	0.410	0.410
Nov 84	0.360	0.360
Dec 84	0.320	0.320
Jan 85	0.330	0.330
Feb 85	0.590	0.590
Mar 85	0.520	0.520
Apr 85	0.700	0.700
May 85	0.440	0.440
Jun 85	0.340	0.340
Jul 85	0.280	0.280
Aug 85	0.290	0.290
Sep 85	0.170	0.170
	11.550	9.360

X ave. = 0.481
Sx = 0.230
Arpos = 0.933
Arneg = 0.030
NBC = 0.425

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.410	0.410
Nov 83	0.520	0.520
Dec 83	0.320	0.320
Jan 84	0.960	
Feb 84	0.490	0.490
Mar 84	0.280	0.280
Apr 84	0.700	0.700
May 84	0.450	0.450
Jun 84	0.430	0.430
Jul 84	0.500	0.500
Aug 84	0.790	0.790
Sep 84	0.340	0.340
Oct 84	0.420	0.420
Nov 84	0.330	0.330
Dec 84	0.310	0.310
Jan 85	0.330	0.330
Feb 85	0.660	0.660
Mar 85	0.370	0.370
Apr 85	0.520	0.520
May 85	0.450	0.450
Jun 85	0.310	0.310
Jul 85	0.270	0.270
Aug 85	0.290	0.290
Sep 85	0.150	0.150
	10.600	9.640

X ave. = 0.442
Sx = 0.184
Arpos = 0.802
Arneg = 0.081
NBC = 0.419

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.410	0.410
Nov 83	0.510	0.510
Dec 83	0.330	0.330
Jan 84	0.960	
Feb 84	0.490	0.490
Mar 84	0.330	0.330
Apr 84	0.720	0.720
May 84	0.470	0.470
Jun 84	0.400	0.400
Jul 84	0.510	0.510
Aug 84	0.860	
Sep 84	0.340	0.340
Oct 84	0.410	0.410
Nov 84	0.330	0.330
Dec 84	0.310	0.310
Jan 85	0.270	0.270
Feb 85	0.580	0.580
Mar 85	0.320	0.320
Apr 85	0.620	0.620
May 85	0.430	0.430
Jun 85	0.310	0.310
Jul 85	0.270	0.270
Aug 85	0.280	0.280
Sep 85	0.130	0.130
	10.590	8.770

X ave. = 0.441
Sx = 0.194
Arpos = 0.822
Arneg = 0.061
NBC = 0.399

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) IRON	(Xar) (Acceptance Range) IRON
Oct 83	0.380	0.380
Nov 83	0.510	0.510
Dec 83	0.330	0.330
Jan 84	1.090	
Feb 84	0.460	0.460
Mar 84	0.340	0.340
Apr 84	0.720	0.720
May 84	0.480	0.480
Jun 84	0.420	0.420
Jul 84	0.480	0.480
Aug 84	0.950	
Sep 84	0.340	0.340
Oct 84	0.380	0.380
Nov 84	0.320	0.320
Dec 84	0.320	0.320
Jan 85	0.330	0.330
Feb 85	0.610	0.610
Mar 85	0.310	0.310
Apr 85	0.660	0.660
May 85	0.420	0.420
Jun 85	0.330	0.330
Jul 85	0.270	0.270
Aug 85	0.300	0.300
Sep 85	0.110	0.110
	10.860	8.820

X ave. = 0.453
Sx = 0.220
Arpos = 0.883
Arneg = 0.022
NBC = 0.401

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.550	0.550
Nov 83	0.520	0.520
Dec 83	0.430	0.430
Jan 84	0.760	0.760
Feb 84	0.700	0.700
Mar 84	0.670	0.670
Apr 84	0.370	0.370
May 84	0.530	0.530
Jun 84	0.420	0.420
Jul 84	0.580	0.580
Aug 84	0.540	0.540
Sep 84	0.360	0.360
Oct 84	0.330	0.330
Nov 84	0.290	0.290
Dec 84	0.210	0.210
Jan 85	0.250	0.250
Feb 85	0.590	0.590
Mar 85	0.470	0.470
Apr 85	0.660	0.660
May 85	0.380	0.380
Jun 85	0.760	0.760
Jul 85	0.370	0.370
Aug 85	0.460	0.460
Sep 85	0.560	0.560
	11.760	11.760

X ave. = 0.490
Sx = 0.155
Arpos = 0.794
Arneg = 0.186
NBC = 0.490

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.490	0.490
Nov 83	0.500	0.500
Dec 83	0.380	0.380
Jan 84	0.710	0.710
Feb 84	0.720	0.720
Mar 84	0.590	0.590
Apr 84	0.350	0.350
May 84	0.510	0.510
Jun 84	0.500	0.500
Jul 84	0.530	0.530
Aug 84	0.540	0.540
Sep 84	0.400	0.400
Oct 84	0.350	0.350
Nov 84	0.290	0.290
Dec 84	0.170	0.170
Jan 85	0.190	0.190
Feb 85	0.520	0.520
Mar 85	0.470	0.470
Apr 85	0.690	0.690
May 85	0.380	0.380
Jun 85	0.770	0.770
Jul 85	0.300	0.300
Aug 85	0.390	0.390
Sep 85	0.620	0.620
	11.360	11.360

X ave. = 0.473
Sx = 0.161
Arpos = 0.789
Arneg = 0.158
NBC = 0.473

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.510	0.510
Nov 83	0.500	0.500
Dec 83	0.470	0.470
Jan 84	0.760	0.760
Feb 84	0.720	0.720
Mar 84	0.550	0.550
Apr 84	0.350	0.350
May 84	0.470	0.470
Jun 84	0.520	0.520
Jul 84	0.510	0.510
Aug 84	0.560	0.560
Sep 84	0.380	0.380
Oct 84	0.330	0.330
Nov 84	0.290	0.290
Dec 84		
Jan 85	0.330	0.330
Feb 85	0.550	0.550
Mar 85	0.500	0.500
Apr 85	0.730	0.730
May 85	0.270	0.270
Jun 85	0.790	0.790
Jul 85	0.300	0.300
Aug 85	0.370	0.370
Sep 85	0.560	0.560
	11.320	11.320

X ave. = 0.492
Sx = 0.153
Arpos = 0.792
Arneg = 0.192
NBC = 0.492

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.550	0.550
Nov 83	0.540	0.540
Dec 83	0.400	0.400
Jan 84	0.730	0.730
Feb 84	0.720	0.720
Mar 84	0.490	0.490
Apr 84	0.350	0.350
May 84	0.530	0.530
Jun 84	0.450	0.450
Jul 84	0.520	0.520
Aug 84	0.540	0.540
Sep 84	0.380	0.380
Oct 84	0.350	0.350
Nov 84	0.260	0.260
Dec 84		
Jan 85	0.310	0.310
Feb 85	0.530	0.530
Mar 85	0.470	0.470
Apr 85	0.760	0.760
May 85	0.080	
Jun 85	0.820	0.820
Jul 85	0.320	0.320
Aug 85	0.410	0.410
Sep 85	0.660	0.660
	11.170	11.090

X ave. = 0.486
Sx = 0.176
Arpos = 0.831
Arneg = 0.140
NBC = 0.504

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.530	0.530
Nov 83	0.500	0.500
Dec 83	0.420	0.420
Jan 84	0.730	0.730
Feb 84	0.700	0.700
Mar 84	0.290	0.290
Apr 84	0.350	0.350
May 84	0.510	0.510
Jun 84	0.450	0.450
Jul 84	0.510	0.510
Aug 84	0.500	0.500
Sep 84	0.360	0.360
Oct 84	0.310	0.310
Nov 84	0.260	0.260
Dec 84		
Jan 85	0.330	0.330
Feb 85	0.550	0.550
Mar 85	0.470	0.470
Apr 85	0.700	0.700
May 85	0.070	
Jun 85	0.840	
Jul 85	0.340	0.340
Aug 85	0.410	0.410
Sep 85	0.600	0.600
	10.730	9.820

X ave. = 0.467
Sx = 0.175
Arpos = 0.809
Arneg = 0.124
NBC = 0.468

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.510	0.510
Nov 83	0.540	0.540
Dec 83	0.450	0.450
Jan 84	0.760	0.760
Feb 84	0.810	0.810
Mar 84	0.630	0.630
Apr 84	0.370	0.370
May 84	0.510	0.510
Jun 84	0.600	0.600
Jul 84	0.530	0.530
Aug 84	0.520	0.520
Sep 84	0.380	0.380
Oct 84	0.330	0.330
Nov 84	0.280	0.280
Dec 84	0.250	0.250
Jan 85	0.330	0.330
Feb 85	0.520	0.520
Mar 85	0.470	0.470
Apr 85	0.730	0.730
May 85	0.200	0.200
Jun 85	0.880	
Jul 85	0.320	0.320
Aug 85	0.460	0.460
Sep 85	0.730	0.730
	12.110	11.230

X ave. = 0.505
Sx = 0.183
Arpos = 0.863
Arneg = 0.146
NBC = 0.488

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.510	0.510
Nov 83	0.540	0.540
Dec 83	0.420	0.420
Jan 84	0.730	0.730
Feb 84	0.770	0.770
Mar 84	0.590	0.590
Apr 84	0.370	0.370
May 84	0.550	0.550
Jun 84	0.500	0.500
Jul 84	0.540	0.540
Aug 84	0.500	0.500
Sep 84	0.410	0.410
Oct 84	0.350	0.350
Nov 84	0.260	0.260
Dec 84	0.250	0.250
Jan 85	0.310	0.310
Feb 85	0.530	0.530
Mar 85	0.500	0.500
Apr 85	0.710	0.710
May 85	0.240	0.240
Jun 85	0.900	
Jul 85	0.210	0.210
Aug 85	0.480	0.480
Sep 85	0.600	0.600
	11.770	10.870

X ave. = 0.490
Sx = 0.176
Arpos = 0.836
Arneg = 0.145
NBC = 0.473

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.530	0.530
Nov 83	0.540	0.540
Dec 83	0.430	0.430
Jan 84	0.730	0.730
Feb 84	0.700	0.700
Mar 84	0.410	0.410
Apr 84	0.350	0.350
May 84	0.550	0.550
Jun 84	0.480	0.480
Jul 84	0.500	0.500
Aug 84	0.400	0.400
Sep 84	0.400	0.400
Oct 84	0.310	0.310
Nov 84	0.280	0.280
Dec 84	0.290	0.290
Jan 85	0.340	0.340
Feb 85	0.480	0.480
Mar 85	0.430	0.430
Apr 85	0.760	0.760
May 85	0.260	0.260
Jun 85	0.910	
Jul 85	0.320	0.320
Aug 85	0.410	0.410
Sep 85	0.620	0.620
	11.430	10.520

X ave. = 0.476
Sx = 0.168
Arpos = 0.805
Arneg = 0.147
NBC = 0.457

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.530	0.530
Nov 83	0.520	0.520
Dec 83	0.450	0.450
Jan 84	0.730	0.730
Feb 84	0.790	0.790
Mar 84	0.530	0.530
Apr 84	0.380	0.380
May 84	0.510	0.510
Jun 84	0.580	0.580
Jul 84	0.510	0.510
Aug 84	0.420	0.420
Sep 84	0.410	0.410
Oct 84	0.330	0.330
Nov 84	0.260	0.260
Dec 84	0.250	0.250
Jan 85	0.210	0.210
Feb 85	0.530	0.530
Mar 85	0.410	0.410
Apr 85	0.750	0.750
May 85		
Jun 85	0.870	
Jul 85	0.230	0.230
Aug 85	0.520	0.520
Sep 85	0.640	0.640
	11.360	10.490

X ave. = 0.494
Sx = 0.180
Arpos = 0.846
Arneg = 0.142
NBC = 0.477

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) LEAD	(Xar) (Acceptance Range) LEAD
Oct 83	0.490	0.490
Nov 83	0.520	0.520
Dec 83	0.360	0.360
Jan 84	0.730	0.730
Feb 84	0.720	0.720
Mar 84	0.570	0.570
Apr 84	0.380	0.380
May 84	0.530	0.530
Jun 84	0.500	0.500
Jul 84	0.480	0.480
Aug 84	0.440	0.440
Sep 84	0.430	0.430
Oct 84	0.330	0.330
Nov 84	0.280	0.280
Dec 84	0.270	0.270
Jan 85	0.290	0.290
Feb 85	0.410	0.410
Mar 85	0.360	0.360
Apr 85	0.750	0.750
May 85	0.100	0.100
Jun 85	0.960	
Jul 85	0.270	0.270
Aug 85	0.520	0.520
Sep 85	0.580	0.580
	11.270	10.310

X ave. = 0.470
Sx = 0.189
Arpos = 0.841
Arneg = 0.099
NBC = 0.448

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.160	0.160
Nov 83	0.150	0.150
Dec 83	0.080	0.080
Jan 84	0.110	0.110
Feb 84	0.100	0.100
Mar 84	0.060	0.060
Apr 84	0.080	0.080
May 84	0.110	0.110
Jun 84	0.100	0.100
Jul 84	0.180	
Aug 84	0.090	0.090
Sep 84	0.070	0.070
Oct 84	0.100	0.100
Nov 84	0.080	0.080
Dec 84	0.070	0.070
Jan 85	0.040	0.040
Feb 85	0.050	0.050
Mar 85	0.140	0.140
Apr 85	0.070	0.070
May 85	0.080	0.080
Jun 85	0.060	0.060
Jul 85	0.070	0.070
Aug 85	0.060	0.060
Sep 85	0.050	0.050
	2.160	1.980

X ave. = 0.090
Sx = 0.036
Arpos = 0.161
Arneg = 0.019
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.150	0.150
Nov 83	0.140	0.140
Dec 83	0.080	0.080
Jan 84	0.110	0.110
Feb 84	0.100	0.100
Mar 84	0.060	0.060
Apr 84	0.090	0.090
May 84	0.100	0.100
Jun 84	0.100	0.100
Jul 84	0.180	
Aug 84	0.090	0.090
Sep 84	0.070	0.070
Oct 84	0.100	0.100
Nov 84	0.090	0.090
Dec 84	0.050	0.050
Jan 85	0.040	0.040
Feb 85	0.040	0.040
Mar 85	0.150	0.150
Apr 85	0.080	0.080
May 85	0.080	0.080
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.050	0.050
Sep 85	0.040	0.040
	2.110	1.930

X ave. = 0.088
Sx = 0.038
Arpos = 0.162
Arneg = 0.014
NBC = 0.084

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.160	
Nov 83	0.130	0.130
Dec 83	0.080	0.080
Jan 84	0.090	0.090
Feb 84	0.100	0.100
Mar 84	0.040	0.040
Apr 84	0.080	0.080
May 84	0.100	0.100
Jun 84	0.090	0.090
Jul 84	0.170	
Aug 84	0.100	0.100
Sep 84	0.070	0.070
Oct 84	0.100	0.100
Nov 84	0.080	0.080
Dec 84		
Jan 85	0.070	0.070
Feb 85	0.060	0.060
Mar 85	0.140	0.140
Apr 85	0.070	0.070
May 85	0.090	0.090
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.060	0.060
Sep 85	0.030	0.030
	2.030	1.700

X ave. = 0.088
Sx = 0.035
Arpos = 0.157
Arneg = 0.019
NBC = 0.081

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.150	0.150
Nov 83	0.140	0.140
Dec 83	0.070	0.070
Jan 84	0.100	0.100
Feb 84	0.100	0.100
Mar 84	0.030	0.030
Apr 84	0.080	0.080
May 84	0.110	0.110
Jun 84	0.090	0.090
Jul 84	0.170	
Aug 84	0.090	0.090
Sep 84	0.070	0.070
Oct 84	0.110	0.110
Nov 84	0.080	0.080
Dec 84		
Jan 85	0.080	0.080
Feb 85	0.050	0.050
Mar 85	0.150	0.150
Apr 85	0.080	0.080
May 85	0.090	0.090
Jun 85	0.050	0.050
Jul 85	0.070	0.070
Aug 85	0.060	0.060
Sep 85	0.040	0.040
	2.060	1.890

X ave. = 0.090
Sx = 0.036
Arpos = 0.161
Arneg = 0.019
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.150	0.150
Nov 83	0.130	0.130
Dec 83	0.080	0.080
Jan 84	0.090	0.090
Feb 84	0.090	0.090
Mar 84	0.010	
Apr 84	0.080	0.080
May 84	0.100	0.100
Jun 84	0.090	0.090
Jul 84	0.170	
Aug 84	0.070	0.070
Sep 84	0.070	0.070
Oct 84	0.090	0.090
Nov 84	0.080	0.080
Dec 84		
Jan 85	0.090	0.090
Feb 85	0.070	0.070
Mar 85	0.150	0.150
Apr 85	0.070	0.070
May 85	0.090	0.090
Jun 85	0.060	0.060
Jul 85	0.070	0.070
Aug 85	0.050	0.050
Sep 85	0.040	0.040
	1.990	1.810

X ave. = 0.087
Sx = 0.036
Arpos = 0.157
Arneg = 0.016
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.150	0.150
Nov 83	0.120	0.120
Dec 83	0.070	0.070
Jan 84	0.110	0.110
Feb 84	0.100	0.100
Mar 84	0.060	0.060
Apr 84	0.090	0.090
May 84	0.100	0.100
Jun 84	0.100	0.100
Jul 84	0.170	
Aug 84	0.090	0.090
Sep 84	0.070	0.070
Oct 84	0.090	0.090
Nov 84	0.080	0.080
Dec 84	0.090	0.090
Jan 85	0.070	0.070
Feb 85	0.030	0.030
Mar 85	0.130	0.130
Apr 85	0.080	0.080
May 85	0.100	0.100
Jun 85	0.060	0.060
Jul 85	0.070	0.070
Aug 85	0.050	0.050
Sep 85	0.040	0.040
	2.120	1.950

X ave. = 0.088
Sx = 0.033
Arpos = 0.152
Arneg = 0.024
NBC = 0.085

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.130	0.130
Nov 83	0.110	0.110
Dec 83	0.080	0.080
Jan 84	0.100	0.100
Feb 84	0.100	0.100
Mar 84	0.060	0.060
Apr 84	0.090	0.090
May 84	0.100	0.100
Jun 84	0.090	0.090
Jul 84	0.180	
Aug 84	0.090	0.090
Sep 84	0.070	0.070
Oct 84	0.100	0.100
Nov 84	0.090	0.090
Dec 84	0.090	0.090
Jan 85	0.070	0.070
Feb 85	0.050	0.050
Mar 85	0.150	0.150
Apr 85	0.080	0.080
May 85	0.080	0.080
Jun 85	0.070	0.070
Jul 85	0.080	0.080
Aug 85	0.060	0.060
Sep 85	0.030	0.030
	2.150	1.970

X ave. = 0.090
Sx = 0.031
Arpos = 0.151
Arneg = 0.028
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) MANGANESE	(Xar) (Acceptance Range) MANGANESE
Oct 83	0.150	0.150
Nov 83	0.110	0.110
Dec 83	0.070	0.070
Jan 84	0.110	0.110
Feb 84	0.100	0.100
Mar 84	0.020	
Jan 84	0.110	0.110
Feb 84	0.100	0.100
Mar 84	0.020	
Apr 84	0.090	0.090
May 84	0.100	0.100
Jun 84	0.090	0.090
Jul 84	0.180	
Aug 84	0.060	0.060
Sep 84	0.070	0.070
Oct 84	0.100	0.100
Nov 84	0.090	0.090
Dec 84	0.100	0.100
Jan 85	0.070	0.070
Feb 85	0.080	0.080
Mar 85	0.100	0.100
Apr 85	0.080	0.080
May 85	0.080	0.080
Jun 85	0.060	0.060
Jul 85	0.060	0.060
Aug 85	0.050	0.050
Sep 85	0.040	0.040
	2.290	2.070

X ave. = 0.085
Sx = 0.034
Arpos = 0.152
Arneg = 0.017
NBC = 0.086

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.250	0.250
Nov 83	0.390	0.390
Dec 83		
Jan 84	5.900	5.900
Feb 84	0.170	0.170
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	6.710	6.710

X ave. = 1.678
Sx = 2.816
Arpos = 7.198
Arneg = -3.843
NBC = 1.678

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.400	0.400
Nov 83	0.130	0.130
Dec 83		
Jan 84	0.440	0.440
Feb 84	0.140	0.140
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	1.110	1.110

X ave. = 0.278
Sx = 0.165
Arpos = 0.602
Arneg = -0.047
NBC = 0.278

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.550	0.550
Nov 83	0.170	0.170
Dec 83	0.120	0.120
Jan 84	0.470	0.470
Feb 84	0.210	0.210
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	0.080	0.080
Jul 85		
Aug 85		
Sep 85		
	1.600	1.600

X ave. = 0.267
Sx = 0.195
Arpos = 0.649
Arneg = -0.116
NBC = 0.267

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.330	0.330
Nov 83	0.090	0.090
Dec 83	0.150	0.150
Jan 84	0.400	0.400
Feb 84	0.170	0.170
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	1.140	1.140

X ave. = 0.228
Sx = 0.131
Arpos = 0.484
Arneg = -0.028
NBC = 0.228

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.360	0.360
Nov 83	0.310	0.310
Dec 83	0.280	0.280
Jan 84	0.620	0.620
Feb 84	0.290	0.290
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	1.860	1.860

X ave. = 0.372
Sx = 0.142
Arpos = 0.650
Arneg = 0.094
NBC = 0.372

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	1.600	1.600
Nov 83	0.280	0.280
Dec 83	0.120	0.120
Jan 84	0.210	0.210
Feb 84	0.220	0.220
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	2.430	2.430

X ave. = 0.486
Sx = 0.625
Arpos = 1.712
Arneg = -0.740
NBC = 0.486

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.470	0.470
Nov 83	0.240	0.240
Dec 83		
Jan 84	0.140	0.140
Feb 84	0.160	0.160
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	1.010	1.010

X ave. = 0.253
Sx = 0.151
Arpos = 0.549
Arneg = -0.044
NBC = 0.253

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.690	0.690
Nov 83		
Dec 83		
Jan 84	0.180	0.180
Feb 84	0.160	0.160
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	1.030	1.030

X ave. = 0.343
Sx = 0.300
Arpos = 0.932
Arneg = -0.245
NBC = 0.343

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
CORRELATION ANALYSIS
RW-09

Month	(Xi) MERCURY	(Xar) (Acceptance Range) (Xi)
Oct 83	0.360	0.360
Dec 83	0.090	0.090
Jan 84	0.180	0.180
Feb 84	0.120	0.120
Mar 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.750	0.750

Y ave. = 0.188 N=
Sy = 0.121
Arpos = 0.425
Arneg = -0.050
NBC = 0.188

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) MERCURY	(Xar) (Acceptance Range) MERCURY
Oct 83	0.360	0.360
Nov 83	0.090	0.090
Dec 83		
Jan 84	0.140	0.140
Feb 84	0.090	0.090
Mar 84	0.070	0.070
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.750	0.750

X ave. = 0.150
Sx = 0.120
Arpos = 0.386
Arneg = -0.086
NBC = 0.150

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.064	0.064
Nov 83	0.029	0.029
Dec 83	0.011	0.011
Jan 84	0.008	0.008
Feb 84	0.004	0.004
Mar 84		
Apr 84	0.008	0.008
May 84	0.009	0.009
Jun 84	0.100	
Jul 84	0.006	0.006
Aug 84		
Sep 84		
Oct 84	0.003	0.003
Nov 84	0.005	0.005
Dec 84	0.070	0.070
Jan 85	0.006	0.006
Feb 85	0.018	0.018
Mar 85	0.026	0.026
Apr 85		
May 85	0.003	0.003
Jun 85	0.012	0.012
Jul 85	0.010	0.010
Aug 85		
Sep 85	0.003	0.003
	0.395	0.295

X ave. = 0.021
Sx = 0.027
Arpos = 0.074
Arneg = -0.033
NBC = 0.016

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.075	
Nov 83	0.030	0.030
Dec 83	0.004	0.004
Jan 84	0.006	0.006
Feb 84	0.004	0.004
Mar 84		
Apr 84	0.025	0.025
May 84	0.011	0.011
Jun 84	0.004	0.004
Jul 84	0.018	0.018
Aug 84		
Sep 84		
Oct 84	0.007	0.007
Nov 84		
Dec 84	0.051	0.051
Jan 85		
Feb 85	0.011	0.011
Mar 85		
Apr 85		
May 85		
Jun 85	0.019	0.019
Jul 85	0.009	0.009
Aug 85		
Sep 85	0.009	0.009
	0.283	0.208

X ave. = 0.019
Sx = 0.020
Arpos = 0.058
Arneg = -0.020
NBC = 0.015

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.044	0.044
Nov 83	0.025	0.025
Dec 83	0.027	0.027
Jan 84	0.006	0.006
Feb 84	0.006	0.006
Mar 84		
Apr 84		
May 84	0.008	0.008
Jun 84	0.071	
Jul 84	0.010	0.010
Aug 84	0.004	0.004
Sep 84	0.004	0.004
Oct 84	0.008	0.008
Nov 84	0.003	0.003
Dec 84		
Jan 85		
Feb 85	0.005	0.005
Mar 85		
Apr 85		
May 85		
Jun 85	0.011	0.011
Jul 85	0.020	0.020
Aug 85		
Sep 85	0.006	0.006
	0.258	0.187

X ave. = 0.016
Sx = 0.018
Arpos = 0.052
Arneg = -0.020
NBC = 0.012

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.079	
Nov 83	0.015	0.015
Dec 83	0.006	0.006
Jan 84	0.008	0.008
Feb 84	0.004	0.004
Mar 84		
Apr 84		
May 84	0.013	0.013
Jun 84	0.007	0.007
Jul 84	0.009	0.009
Aug 84		
Sep 84	0.004	0.004
Oct 84	0.007	0.007
Nov 84	0.004	0.004
Dec 84		
Jan 85	0.005	0.005
Feb 85		
Mar 85		
Apr 85		
May 85	0.018	0.018
Jun 85	0.018	0.018
Jul 85	0.010	0.010
Aug 85		
Sep 85	0.009	0.009
	0.216	0.137

X ave. = 0.014
Sx = 0.018
Arpos = 0.049
Arneg = -0.022
NBC = 0.009

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.051	
Nov 83	0.024	0.024
Dec 83	0.003	0.003
Jan 84	0.009	0.009
Feb 84	0.004	0.004
Mar 84		
Apr 84		
May 84	0.010	0.010
Jun 84	0.008	0.008
Jul 84	0.006	0.006
Aug 84	0.008	0.008
Sep 84	0.005	0.005
Oct 84	0.010	0.010
Nov 84		
Dec 84		
Jan 85	0.003	0.003
Feb 85	0.015	0.015
Apr 85	0.003	0.003
May 85	0.013	0.013
Jun 85	0.013	0.013
Jul 85	0.017	0.017
Aug 85		
Sep 85	0.005	0.005
	0.207	0.156

X ave. = 0.012
Sx = 0.011
Arpos = 0.034
Arneg = -0.011
NBC = 0.009

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.060	0.060
Nov 83	0.037	0.037
Dec 83		
Jan 84	0.007	0.007
Feb 84	0.005	0.005
Mar 84		
Apr 84		
May 84	0.008	0.008
Jun 84	0.007	0.007
Jul 84	0.310	
Aug 84	0.004	0.004
Sep 84	0.003	0.003
Oct 84		
Nov 84	0.004	0.004
Dec 84	0.066	0.066
Jan 85	0.003	0.003
Feb 85	0.005	0.005
Mar 85		
Apr 85		
May 85	0.018	0.018
Jun 85	0.022	0.022
Jul 85	0.010	0.010
Aug 85		
Sep 85	0.018	0.018
	0.587	0.277

X ave. = 0.035
Sx = 0.074
Arpos = 0.179
Arneg = -0.110
NBC = 0.017

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.004	0.004
Nov 83	0.014	
Dec 83	0.003	0.003
Jan 84	0.007	0.007
Feb 84	0.006	0.006
Mar 84		
Apr 84		
May 84	0.008	0.008
Jun 84	0.008	0.008
Jul 84	0.003	0.003
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84	0.003	0.003
Jan 85	0.003	0.003
Feb 85	0.005	0.005
Mar 85		
Apr 85		
May 85	0.006	0.006
Jun 85	0.006	0.006
Jul 85	0.006	0.006
Aug 85		
Sep 85	0.013	
	0.095	0.068

X ave. = 0.006
Sx = 0.003
Arpos = 0.013
Arneg = -0.000
NBC = 0.005

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.044	
Nov 83	0.008	0.008
Dec 83		
Jan 84	0.005	0.005
Feb 84	0.005	0.005
Mar 84		
Apr 84		
May 84	0.009	0.009
Jun 84	0.012	0.012
Jul 84	0.004	0.004
Aug 84		
Sep 84	0.005	0.005
Oct 84	0.004	0.004
Nov 84	0.003	0.003
Dec 84	0.005	0.005
Jan 85		
Feb 85	0.011	0.011
Mar 85		
Apr 85	0.003	0.003
May 85	0.005	0.005
Jun 85	0.011	0.011
Jul 85	0.007	0.007
Aug 85		
Sep 85	0.004	0.004
	0.145	0.101

X ave. = 0.009
Sx = 0.010
Arpos = 0.027
Arneg = -0.010
NBC = 0.006

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.015	0.015
Nov 83	0.037	
Dec 83	0.003	0.003
Jan 84	0.010	0.010
Feb 84	0.004	0.004
Mar 84	0.005	0.005
Apr 84		
May 84	0.014	0.014
Jun 84	0.004	0.004
Jul 84		
Aug 84	0.009	0.009
Sep 84	0.007	0.007
Oct 84		
Nov 84	0.003	0.003
Dec 84	0.004	0.004
Jan 85	0.003	0.003
Feb 85	0.008	0.008
Mar 85	0.003	0.003
Apr 85	0.003	0.003
May 85	0.009	0.009
Jun 85	0.006	0.006
Jul 85	0.020	0.020
Aug 85		
Sep 85	0.006	0.006
	0.173	0.136

X ave. = 0.009
Sx = 0.008
Arpos = 0.025
Arneg = -0.007
NBC = 0.007

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) NITRATE + NITRITE	(Xar) (Acceptance Range) NITRATE +
Oct 83	0.003	0.003
Nov 83	0.015	
Dec 83	0.005	0.005
Jan 84	0.008	0.008
Feb 84	0.003	0.003
Mar 84		
Apr 84		
May 84	0.009	0.009
Jun 84	0.005	0.005
Jul 84	0.018	
Aug 84	0.004	0.004
Sep 84	0.005	0.005
Oct 84		
Nov 84		
Dec 84	0.005	0.005
Jan 85	0.006	0.006
Feb 85	0.006	0.006
Mar 85	0.003	0.003
Apr 85		
May 85	0.003	0.003
Jun 85	0.008	0.008
Jul 85	0.010	0.010
Aug 85	0.003	0.003
Sep 85	0.009	0.009
	0.128	0.095

X ave. = 0.007
Sx = 0.004
Arpos = 0.015
Arneg = -0.001
NBC = 0.006

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	5.000	5.000
Nov 83		
Dec 83		
Jan 84		
Feb 84	3.000	3.000
Mar 84	3.000	3.000
Apr 84	2.000	2.000
May 84	6.000	6.000
Jun 84		
Jul 84	2.000	2.000
Aug 84	2.000	2.000
Sep 84	3.000	3.000
Oct 84		
Nov 84		
Dec 84	9.000	9.000
Jan 85	9.000	9.000
Feb 85	28.000	
Mar 85	3.000	3.000
Apr 85	2.000	2.000
May 85		
Jun 85	1.000	1.000
Jul 85	2.000	2.000
Aug 85	1.000	1.000
Sep 85	8.000	8.000
	89.000	61.000

X ave. = 5.235
Sx = 6.437
Arpos = 17.853
Arneg = -7.382
NBC = 3.813

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	3.000	3.000
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84	2.000	2.000
Mar 84	2.000	2.000
Apr 84	4.000	4.000
May 84	1.000	1.000
Jun 84	3.000	3.000
Jul 84	6.000	6.000
Aug 84		
Sep 84	2.000	2.000
Oct 84	2.000	2.000
Nov 84	3.000	3.000
Dec 84	6.000	6.000
Jan 85	10.000	10.000
Feb 85	3.000	3.000
Mar 85	19.000	
Apr 85	4.000	4.000
May 85	3.000	3.000
Jun 85		
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	6.000	6.000
	82.000	63.000

X ave. = 4.100
Sx = 4.166
Arpos = 12.266
Arneg = -4.066
NBC = 3.316

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	3.000	3.000
Nov 83		
Dec 83		
Jan 84		
Feb 84	3.000	3.000
Mar 84	2.000	2.000
Apr 84	5.000	5.000
May 84	3.000	3.000
Jun 84	1.000	1.000
Jul 84	6.000	6.000
Aug 84		
Sep 84	1.000	1.000
Oct 84		
Nov 84	4.000	4.000
Dec 84		
Jan 85	1.000	1.000
Feb 85	2.000	2.000
Mar 85		
Apr 85	4.000	4.000
May 85		
Jun 85		
Jul 85	3.000	3.000
Aug 85	2.000	2.000
Sep 85	13.000	
	53.000	40.000

X ave. = 3.533
Sx = 2.997
Arpos = 9.407
Arneg = -2.340
NBC = 2.857

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	3.000	3.000
Nov 83		0.000
Dec 83		0.000
Jan 84		
Feb 84	3.000	3.000
Mar 84	1.000	1.000
Apr 84	6.000	6.000
May 84	1.000	1.000
Jun 84	5.000	5.000
Jul 84	5.000	5.000
Aug 84		0.000
Sep 84	1.000	1.000
Oct 84		0.000
Nov 84		0.000
Dec 84		0.000
Jan 85		0.000
Feb 85	6.000	6.000
Mar 85	1.000	1.000
Apr 85	5.000	5.000
May 85	1.000	1.000
Jun 85		0.000
Jul 85	1.000	1.000
Aug 85	2.000	2.000
Sep 85	6.000	6.000
	47.000	47.000

X ave. = 3.133
Sx = 2.134
Arpos = 7.315
Arneg = -1.049
NBC = 2.043

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	7.000	7.000
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84	3.000	3.000
Mar 84	1.000	1.000
Apr 84	2.000	2.000
May 84	1.000	1.000
Jun 84	2.000	2.000
Jul 84	5.000	5.000
Aug 84	5.000	5.000
Sep 84	3.000	3.000
Oct 84	2.000	2.000
Nov 84		
Dec 84		
Jan 85	2.000	2.000
Feb 85	8.000	
Mar 85		
Apr 85	3.000	3.000
May 85	2.000	2.000
Jun 85	2.000	2.000
Jul 85	1.000	1.000
Aug 85	1.000	1.000
Sep 85	8.000	
	59.000	43.000

X ave. = 3.105
Sx = 2.355
Arpos = 7.720
Arneg = -1.510
NBC = 2.529

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	4.000	4.000
Nov 83		
Dec 83		
Jan 84		
Feb 84		
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	2.000	2.000
Jun 84		
Jul 84	18.000	18.000
Aug 84		
Sep 84	3.000	3.000
Oct 84		
Nov 84	23.000	23.000
Dec 84	5.000	5.000
Jan 85		
Feb 85		
Mar 85		
Apr 85	3.000	3.000
May 85	2.000	2.000
Jun 85	11.000	11.000
Jul 85		
Aug 85	1.000	1.000
Sep 85	19.000	19.000
	93.000	93.000

X ave. = 7.154
Sx = 7.851
Arpos = 22.542
Arneg = -8.234
NBC = 7.154

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83		
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84		
Mar 84		
Apr 84		
May 84	1.000	1.000
Jun 84		
Jul 84	28.000	
Aug 84		
Sep 84	2.000	2.000
Oct 84		
Nov 84	12.000	12.000
Dec 84	3.000	3.000
Jan 85		
Feb 85	3.000	3.000
Mar 85	13.000	13.000
Apr 85	2.000	2.000
May 85	1.000	1.000
Jun 85	2.000	2.000
Jul 85		
Aug 85	1.000	1.000
Sep 85	4.000	4.000
	73.000	45.000

X ave. = 5.615
Sx = 7.837
Arpos = 20.976
Arneg = -9.746
NBC = 3.750

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	5.000	5.000
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84		
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	1.000	1.000
Jun 84		
Jul 84	4.000	4.000
Aug 84		
Sep 84	3.000	3.000
Oct 84	6.000	6.000
Nov 84	11.000	
Dec 84	4.000	4.000
Jan 85	1.000	1.000
Feb 85	3.000	3.000
Mar 85	10.000	
Apr 85	6.000	6.000
May 85	2.000	2.000
Jun 85	1.000	1.000
Jul 85		
Aug 85	2.000	2.000
Sep 85	4.000	4.000
	66.000	45.000

X ave. = 3.667
Sx = 3.029
Arpos = 9.604
Arneg = -2.271
NBC = 2.813

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	3.000	3.000
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84	1.000	1.000
May 84	2.000	2.000
Jun 84		
Jul 84	2.000	2.000
Aug 84		
Sep 84		
Oct 84	9.000	9.000
Nov 84	4.000	4.000
Dec 84		
Jan 85	1.000	1.000
Feb 85	7.000	7.000
Mar 85	8.000	8.000
Apr 85	5.000	5.000
May 85	2.000	2.000
Jun 85	1.000	1.000
Jul 85		
Aug 85	1.000	1.000
Sep 85	7.000	7.000
	56.000	56.000

X ave. = 3.294
Sx = 2.823
Arpos = 8.828
Arneg = -2.239
NBC = 3.294

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) OIL	(Xar) (Acceptance Range) OIL
Oct 83	3.000	3.000
Nov 83		
Dec 83		
Jan 84	1.000	1.000
Feb 84	1.000	1.000
Mar 84	1.000	1.000
Apr 84		
May 84	1.000	1.000
Jun 84		
Jul 84		
Aug 84	2.000	2.000
Sep 84	1.000	1.000
Oct 84	4.000	4.000
Nov 84	8.000	8.000
Dec 84	13.000	
Jan 85	1.000	1.000
Feb 85	2.000	2.000
Mar 85	2.000	2.000
Apr 85	3.000	3.000
May 85		
Jun 85	1.000	1.000
Jul 85		
Aug 85	1.000	1.000
Sep 85	5.000	5.000
	50.000	37.000

X ave. = 2.941
Sx = 3.211
Arpos = 9.234
Arneg = -3.352
NBC = 2.313

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	7.000	7.000
Nov 83		
Dec 83	0.110	0.110
Jan 84		
Feb 84		
Mar 84		
Apr 84	12.000	12.000
May 84		
Jun 84	4.000	4.000
Jul 84	161.000	
Aug 84	13.000	13.000
Sep 84	11.000	11.000
Oct 84	6.000	6.000
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85	28.000	28.000
Aug 85		
Sep 85		
	242.110	81.110

X ave. = 26.901
Sx = 50.901
Arpos = 126.666
Arneg = -72.864
NBC = 10.139

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	8.000	8.000
Nov 83	9.000	9.000
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	13.000	13.000
May 84	17.000	17.000
Jun 84		
Jul 84	27.000	27.000
Aug 84		
Sep 84	2.000	2.000
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85	18.000	18.000
Aug 85		
Sep 85		
	94.000	94.000

X ave. = 13.429
Sx = 8.142
Arpos = 29.386
Arneg = -2.529
NBC = 13.429

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	5.000	5.000
Nov 83	9.000	9.000
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	15.000	15.000
May 84		
Jun 84		
Jul 84	90.000	90.000
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	17.000	17.000
Jul 85		
Aug 85		
Sep 85		
	136.000	136.000

X ave. = 27.200
Sx = 35.429
Arpos = 96.640
Arneg = -42.240
NBC = 27.200

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	5.000	5.000
Nov 83	9.000	9.000
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	13.000	13.000
May 84		
Jun 84		
Jul 84	26.000	26.000
Aug 84	12.000	12.000
Sep 84		
Oct 84	18.000	18.000
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	9.000	9.000
Jul 85		
Aug 85		
Sep 85		
	92.000	92.000

X ave. = 13.143
Sx = 6.962
Arpos = 26.789
Arneg = -0.504
NBC = 13.143

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	2.000	2.000
Nov 83		
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	11.000	11.000
May 84	11.000	11.000
Jun 84		
Jul 84	16.000	16.000
Aug 84	6.000	6.000
Sep 84	43.000	
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	4.000	4.000
Jul 85		
Aug 85		
Sep 85		
	93.000	50.000

X ave. = 13.286
Sx = 13.949
Arpos = 40.626
Arneg = -14.054
NBC = 8.333

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	2.000	2.000
Nov 83	6.000	6.000
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	5.000	5.000
May 84		
Jun 84	4.000	4.000
Jul 84	16.000	16.000
Aug 84	17.000	17.000
Sep 84		
Oct 84	9.000	9.000
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85	4.000	4.000
Jul 85	6.000	6.000
	69.000	69.000

X ave. = 7.667
Sx = 5.362
Arpos = 18.176
Arneg = -2.843
NBC = 7.667

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	6.000	6.000
Nov 83	3.000	3.000
Dec 83		
Jan 84		
Feb 84		
Mar 84	2.000	2.000
Apr 84	11.000	
May 84	2.000	2.000
Jun 84	2.000	2.000
Jul 84	4.000	4.000
Aug 84	6.000	6.000
Sep 84	3.000	3.000
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	39.000	28.000

X ave. = 4.333
Sx = 2.958
Arpos = 10.131
Arneg = -1.464
NBC = 3.500

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	2.000	2.000
Nov 83	7.000	7.000
Dec 83		
Jan 84		
Feb 84		
Mar 84	2.000	2.000
Apr 84	12.000	12.000
May 84	3.000	3.000
Jun 84	2.000	2.000
Jul 84	24.000	
Aug 84	5.000	5.000
Sep 84		
Oct 84	6.000	6.000
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	63.000	39.000

X ave. = 7.000
Sx = 7.159
Arpos = 21.031
Arneg = -7.031
NBC = 4.875

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	5.000	5.000
Nov 83	18.000	18.000
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	10.000	10.000
May 84		
Jun 84	2.000	2.000
Jul 84	11.000	11.000
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	46.000	46.000

X ave. = 9.200
Sx = 6.140
Arpos = 21.234
Arneg = -2.834
NBC = 9.200

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) PHENOLS	(Xar) (Acceptance Range) PHENOLS
Oct 83	14.000	14.000
Nov 83	18.000	18.000
Dec 83		
Jan 84		
Feb 84		
Mar 84	3.000	3.000
Apr 84	10.000	10.000
May 84	4.000	4.000
Jun 84		
Jul 84	7.000	7.000
Aug 84		
Sep 84	8.000	8.000
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	64.000	64.000

X ave. = 9.143
Sx = 5.367
Arpos = 19.663
Arneg = -1.377
NBC = 9.143

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.027	0.027
Nov 83	0.021	0.021
Dec 83	0.011	0.011
Jan 84		
Feb 84		
Mar 84	0.004	0.004
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.063	0.063

X ave. = 0.016
Sx = 0.010
Arpos = 0.036
Arneg = -0.004
NBC = 0.016

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.019	0.019
Nov 83	0.117	0.117
Dec 83	0.008	0.008
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.144	0.144

X ave. = 0.048
Sx = 0.060
Arpos = 0.166
Arneg = -0.070
NBC = 0.048

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.065	0.065
Nov 83	0.067	0.067
Dec 83	0.012	0.012
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.144	0.144

X ave. = 0.048
Sx = 0.031
Arpos = 0.109
Arneg = -0.013
NBC = 0.048

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.024	0.024
Nov 83	0.043	0.043
Dec 83	0.012	0.012
Jan 84	0.009	0.009
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.088	0.088

X ave. = 0.022
Sx = 0.015
Arpos = 0.052
Arneg = -0.008
NBC = 0.022

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.015	0.015
Nov 83	0.053	0.053
Dec 83	0.009	0.009
Jan 84	0.003	0.003
Feb 84	0.011	0.011
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.091	0.091

X ave. = 0.018
Sx = 0.020
Arpos = 0.057
Arneg = -0.021
NBC = 0.018

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.023	0.023
Nov 83	0.091	0.091
Dec 83	0.005	0.005
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.119	0.119

X ave. = 0.040
Sx = 0.045
Arpos = 0.129
Arneg = -0.049
NBC = 0.040

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.029	0.029
Nov 83	0.064	0.064
Dec 83	0.007	0.007
Jan 84	0.006	0.006
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.106	0.106

X ave. = 0.027
Sx = 0.027
Arpos = 0.080
Arneg = -0.027
NBC = 0.027

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.042	0.042
Nov 83	0.068	0.068
Dec 83	0.008	0.008
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.118	0.118

X ave. = 0.039
Sx = 0.030
Arpos = 0.098
Arneg = -0.020
NBC = 0.039

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.023	0.023
Nov 83	0.051	0.051
Dec 83	0.007	0.007
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.081	0.081

X ave. = 0.027
Sx = 0.022
Arpos = 0.071
Arneg = -0.017
NBC = 0.027

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) SELENIUM	(Xar) (Acceptance Range) SELENIUM
Oct 83	0.031	0.031
Nov 83	0.085	0.085
Dec 83	0.005	0.005
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85		
May 85		
Jun 85		
Jul 85		
Aug 85		
Sep 85		
	0.121	0.121

X ave. = 0.040
Sx = 0.041
Arpos = 0.120
Arneg = -0.040
NBC = 0.040

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.020	0.020
Nov 83	0.080	0.080
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.070	0.070
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.060	0.060
Aug 84	0.060	0.060
Sep 84	0.040	0.040
Oct 84	0.030	0.030
Nov 84	0.040	0.040
Dec 84	0.040	0.040
Jan 85	0.030	0.030
Feb 85	0.060	0.060
Mar 85	0.060	0.060
Apr 85	0.060	0.060
May 85	0.100	0.100
Jun 85	1.770	
Jul 85	0.050	0.050
Aug 85	0.080	0.080
Sep 85	0.080	0.080
	3.070	1.300

X ave. = 0.128
Sx = 0.350
Arpos = 0.814
Arneg = -0.559
NBC = 0.057

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.080	0.080
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.070	0.070
Apr 84	0.060	0.060
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.050	0.050
Oct 84	0.030	0.030
Nov 84	0.040	0.040
Dec 84	0.030	0.030
Jan 85	0.030	0.030
Feb 85	0.060	0.060
Mar 85	0.060	0.060
Apr 85	0.060	0.060
May 85	0.090	0.090
Jun 85	1.360	
Jul 85	0.050	0.050
Aug 85	0.070	0.070
Sep 85	0.050	0.050
	2.610	1.250

X ave. = 0.109
Sx = 0.267
Arpos = 0.632
Arneg = -0.415
NBC = 0.054

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.070	0.070
Dec 83	0.040	0.040
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.060	0.060
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.030	0.030
Jul 84	0.050	0.050
Aug 84	0.040	0.040
Sep 84	0.050	0.050
Oct 84	0.030	0.030
Nov 84	0.030	0.030
Dec 84		
Jan 85		
Feb 85	0.060	0.060
Mar 85	0.060	0.060
Apr 85	0.060	0.060
May 85	0.080	0.080
Jun 85	0.730	
Jul 85	0.050	0.050
Aug 85	0.060	0.060
Sep 85	0.060	0.060
	1.840	1.110

X ave. = 0.084
Sx = 0.145
Arpos = 0.368
Arneg = -0.201
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.050	0.050
Feb 84	0.080	0.080
Mar 84	0.050	0.050
Apr 84	0.060	0.060
May 84	0.050	0.050
Jun 84	0.040	0.040
Jul 84	0.050	0.050
Aug 84	0.030	0.030
Sep 84	0.040	0.040
Oct 84	0.030	0.030
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.040	0.040
Feb 85	0.060	0.060
Mar 85	0.060	0.060
Apr 85	0.060	0.060
May 85	0.090	0.090
Jun 85	0.370	
Jul 85	0.040	0.040
Aug 85	0.070	0.070
Sep 85	0.060	0.060
	1.510	1.140

X ave. = 0.066
Sx = 0.068
Arpos = 0.199
Arneg = -0.068
NBC = 0.052

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.060	0.060
Dec 83	0.060	0.060
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.020	0.020
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.030	0.030
Jul 84	0.060	0.060
Aug 84	0.030	0.030
Sep 84	0.040	0.040
Oct 84	0.050	0.050
Nov 84	0.040	0.040
Dec 84		
Jan 85	0.040	0.040
Feb 85	0.060	0.060
Mar 85	0.070	0.070
Apr 85	0.060	0.060
May 85	0.080	0.080
Jun 85	0.190	0.190
Jul 85	0.050	0.050
Aug 85	0.060	0.060
Sep 85	0.060	0.060
	1.340	1.340

X ave. = 0.058
Sx = 0.033
Arpos = 0.123
Arneg = -0.006
NBC = 0.058

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.070	0.070
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.020	0.020
Jul 84	0.060	0.060
Aug 84	0.030	0.030
Sep 84	0.050	0.050
Oct 84	0.040	0.040
Nov 84	0.040	0.040
Dec 84	0.040	0.040
Jan 85	0.040	0.040
Feb 85	0.060	0.060
Mar 85	0.070	0.070
Apr 85	0.060	0.060
May 85	0.080	0.080
Jun 85	0.100	
Jul 85	0.040	0.040
Aug 85	0.060	0.060
Sep 85	0.060	0.060
	1.310	1.210

X ave. = 0.055
Sx = 0.018
Arpos = 0.091
Arneg = 0.018
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.070	0.070
Dec 83	0.060	0.060
Jan 84	0.060	0.060
Feb 84	0.080	0.080
Mar 84	0.070	0.070
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.020	
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.050	0.050
Oct 84	0.030	0.030
Nov 84	0.040	0.040
Dec 84	0.040	0.040
Jan 85	0.040	0.040
Feb 85	0.060	0.060
Mar 85	0.050	0.050
Apr 85	0.060	0.060
May 85	0.090	
Jun 85	0.060	0.060
Jul 85	0.040	0.040
Aug 85	0.060	0.060
Sep 85	0.060	0.060
	1.270	1.160

X ave. = 0.053
Sx = 0.016
Arpos = 0.085
Arneg = 0.021
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.030	0.030
Apr 84	0.060	0.060
May 84	0.050	0.050
Jun 84	0.020	0.020
Jul 84	0.060	0.060
Aug 84	0.020	0.020
Sep 84	0.050	0.050
Oct 84	0.020	0.020
Nov 84	0.040	0.040
Dec 84	0.040	0.040
Jan 85	0.040	0.040
Feb 85	0.070	0.070
Mar 85	0.050	0.050
Apr 85	0.060	0.060
May 85	0.090	
Jun 85	0.060	0.060
Jul 85	0.040	0.040
Aug 85	0.050	0.050
Sep 85	0.060	0.060
	1.200	1.110

X ave. = 0.050
Sx = 0.018
Arpos = 0.086
Arneg = 0.014
NBC = 0.048

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.030	0.030
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.040	0.040
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.030	0.030
Jul 84	0.060	0.060
Aug 84	0.030	0.030
Sep 84	0.060	0.060
Oct 84	0.020	
Nov 84	0.040	0.040
Dec 84	0.060	0.060
Jan 85	0.040	0.040
Feb 85	0.060	0.060
Mar 85	0.050	0.050
Apr 85	0.060	0.060
May 85	0.080	0.080
Jun 85	0.060	0.060
Jul 85	0.050	0.050
Aug 85	0.050	0.050
Sep 85	0.060	0.060
	1.240	1.220

X ave. = 0.052
Sx = 0.015
Arpos = 0.082
Arneg = 0.022
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) SILVER	(Xar) (Acceptance Range) SILVER
Oct 83	0.040	0.040
Nov 83	0.060	0.060
Dec 83	0.050	0.050
Jan 84	0.070	0.070
Feb 84	0.080	0.080
Mar 84	0.040	0.040
Apr 84	0.050	0.050
May 84	0.050	0.050
Jun 84	0.030	0.030
Jul 84	0.060	0.060
Aug 84	0.040	0.040
Sep 84	0.070	0.070
Oct 84	0.020	0.020
Nov 84	0.040	0.040
Dec 84	0.040	0.040
Jan 85	0.040	0.040
Feb 85	0.070	0.070
Mar 85	0.040	0.040
Apr 85	0.060	0.060
May 85	0.090	
Jun 85	0.060	0.060
Jul 85	0.040	0.040
Aug 85	0.040	0.040
Sep 85	0.060	0.060
	1.240	1.150

X ave. = 0.052
Sx = 0.017
Arpos = 0.084
Arneg = 0.019
NBC = 0.050

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83	4.570	
Nov 83	0.480	0.480
Dec 83	2.930	2.930
Jan 84	1.730	1.730
Feb 84	2.300	2.300
Mar 84	2.530	2.530
Apr 84	2.270	2.270
May 84	2.470	2.470
Jun 84	2.470	2.470
Jul 84	2.000	2.000
Aug 84	2.400	2.400
Sep 84	1.200	1.200
Oct 84		
Nov 84		
Dec 84	0.670	0.670
Jan 85	0.110	0.110
Feb 85	0.170	0.170
Mar 85	0.970	0.970
Apr 85	0.900	0.900
May 85		
Jun 85	0.360	0.360
Jul 85	0.440	0.440
Aug 85	1.300	1.300
Sep 85		
	32.270	27.700

X ave. = 1.614
Sx = 1.150
Arpos = 3.867
Arneg = -0.640
NBC = 1.458

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83	0.690	0.690
Nov 83	1.000	1.000
Dec 83	1.850	1.850
Jan 84	2.000	2.000
Feb 84	2.700	2.700
Mar 84	2.670	2.670
Apr 84	2.470	2.470
May 84	2.270	2.270
Jun 84	2.400	2.400
Jul 84	2.070	2.070
Aug 84	2.400	2.400
Sep 84	0.530	0.530
Oct 84	0.450	0.450
Nov 84		
Dec 84	0.900	0.900
Jan 85	0.220	0.220
Feb 85	0.240	0.240
Mar 85	1.480	1.480
Apr 85	1.000	1.000
May 85		
Jun 85	0.170	0.170
Jul 85	0.270	0.270
Aug 85	0.550	0.550
Sep 85		
	28.330	28.330

X ave. = 1.349
Sx = 0.926
Arpos = 3.164
Arneg = -0.466
NBC = 1.349

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83	1.280	1.280
Nov 83	0.880	0.880
Dec 83	0.900	0.900
Jan 84	1.330	1.330
Feb 84	2.400	2.400
Mar 84	2.800	2.800
Apr 84	2.400	2.400
May 84	2.130	2.130
Jun 84	2.130	2.130
Jul 84	2.330	2.330
Aug 84	2.400	2.400
Sep 84	1.200	1.200
Oct 84		
Nov 84		
Dec 84		
Jan 85	0.420	0.420
Feb 85	0.110	0.110
Mar 85	1.480	1.480
Apr 85	1.130	1.130
May 85		
Jun 85	0.480	0.480
Jul 85	0.490	0.490
Aug 85	1.690	1.690
Sep 85		
	27.980	27.980

X ave. = 1.473
Sx = 0.811
Arpos = 3.062
Arneg = -0.116
NBC = 1.473

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83		
Nov 83	1.800	1.800
Dec 83	1.850	1.850
Jan 84	1.730	1.730
Feb 84	2.300	2.300
Mar 84	3.000	
Apr 84	2.070	2.070
May 84	2.070	2.070
Jun 84	2.200	2.200
Jul 84	2.270	2.270
Aug 84	2.530	2.530
Sep 84	1.000	1.000
Oct 84		
Nov 84	0.150	0.150
Dec 84		
Jan 85	0.340	0.340
Feb 85	0.110	0.110
Mar 85	1.160	1.160
Apr 85	1.110	1.110
May 85		
Jun 85	0.530	0.530
Jul 85	0.340	0.340
Aug 85	0.580	0.580
Sep 85		
	27.140	24.140

X ave. = 1.428
Sx = 0.901
Arpos = 3.194
Arneg = -0.337
NBC = 1.341

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83	1.260	1.260
Nov 83	1.900	1.900
Dec 83	2.150	2.150
Jan 84	1.700	1.700
Feb 84	2.200	2.200
Mar 84	2.670	2.670
Apr 84	2.400	2.400
May 84	2.270	2.270
Jun 84	2.130	2.130
Jul 84	2.240	2.240
Aug 84	2.470	2.470
Sep 84	0.730	0.730
Oct 84		
Nov 84	0.090	0.090
Dec 84		
Jan 85	0.340	0.340
Feb 85	0.300	0.300
Mar 85	0.710	0.710
Apr 85	1.030	1.030
May 85	0.020	0.020
Jun 85	0.660	0.660
Jul 85	0.370	0.370
Aug 85	1.050	1.050
Sep 85		
	28.690	28.690

X ave. = 1.366
Sx = 0.895
Arpos = 3.121
Arneg = -0.389
NBC = 1.366

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83		
Nov 83	1.400	1.400
Dec 83	2.150	2.150
Jan 84	1.870	1.870
Feb 84	2.100	2.100
Mar 84	2.200	2.200
Apr 84	2.270	2.270
May 84	2.270	2.270
Jun 84	2.000	2.000
Jul 84	2.130	2.130
Aug 84	2.600	2.600
Sep 84	0.930	0.930
Oct 84		
Nov 84		
Dec 84	1.060	1.060
Jan 85	0.170	0.170
Feb 85	0.300	0.300
Mar 85	0.900	0.900
Apr 85	0.950	0.950
May 85		
Jun 85	0.560	0.560
Jul 85	0.330	0.330
Aug 85	0.940	0.940
Sep 85	0.640	0.640
	27.770	27.770

X ave. = 1.389
Sx = 0.792
Arpos = 2.940
Arneg = -0.163
NBC = 1.389

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83		
Nov 83	1.400	1.400
Dec 83	2.410	2.410
Jan 84	1.330	1.330
Feb 84	2.500	2.500
Mar 84	2.400	2.400
Apr 84	2.330	2.330
May 84	2.330	2.330
Jun 84	2.400	2.400
Jul 84	2.070	2.070
Aug 84	2.530	2.530
Sep 84	1.200	1.200
Oct 84		
Nov 84	0.360	0.360
Dec 84	1.290	1.290
Jan 85	0.220	0.220
Feb 85	0.360	0.360
Mar 85	1.480	1.480
Apr 85	1.030	1.030
May 85		
Jun 85	0.880	0.880
Jul 85	0.140	0.140
Aug 85		
Sep 85	0.720	0.720
	29.380	29.380

X ave. = 1.469
Sx = 0.848
Arpos = 3.131
Arneg = -0.193
NBC = 1.469

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83	0.930	0.930
Nov 83	1.500	1.500
Dec 83	1.740	1.740
Jan 84	1.470	1.470
Feb 84	2.000	2.000
Mar 84	2.270	2.270
Apr 84	2.670	2.670
May 84	2.270	2.270
Jun 84	2.330	2.330
Jul 84	2.000	2.000
Aug 84	2.530	2.530
Sep 84	1.100	1.100
Oct 84		
Nov 84		
Dec 84	1.120	1.120
Jan 85	0.280	0.280
Feb 85		
Mar 85	1.600	1.600
Apr 85	0.620	0.620
May 85		
Jun 85	0.830	0.830
Jul 85	0.620	0.620
Aug 85	1.730	1.730
Sep 85		
	29.610	29.610

X ave. = 1.558
Sx = 0.706
Arpos = 2.943
Arneg = 0.174
NBC = 1.558

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83		
Nov 83	1.500	1.500
Dec 83	1.850	1.850
Jan 84	1.070	1.070
Feb 84	2.300	2.300
Mar 84	2.670	2.670
Apr 84	2.130	2.130
May 84	2.270	2.270
Jun 84	2.000	2.000
Jul 84	2.200	2.200
Aug 84	2.530	2.530
Sep 84	0.800	0.800
Oct 84		
Nov 84		
Dec 84	0.950	0.950
Jan 85	0.780	0.780
Feb 85	0.300	0.300
Mar 85	2.050	2.050
Apr 85	1.080	1.080
May 85		
Jun 85	0.560	0.560
Jul 85	0.420	0.420
Aug 85	1.900	1.900
Sep 85		
	29.360	29.360

X ave. = 1.545
Sx = 0.764
Arpos = 3.043
Arneg = 0.048
NBC = 1.545

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) SULFIDES	(Xar) (Acceptance Range) SULFIDES
Oct 83		
Nov 83	1.000	1.000
Dec 83	2.150	2.150
Jan 84	1.470	1.470
Feb 84	2.400	2.400
Mar 84	2.270	2.270
Apr 84	2.000	2.000
May 84	2.270	2.270
Jun 84	2.270	2.270
Jul 84	2.400	2.400
Aug 84	2.670	2.670
Sep 84	0.600	0.600
Oct 84		
Nov 84	0.170	0.170
Dec 84	1.010	1.010
Jan 85		
Feb 85	0.430	0.430
Mar 85	0.650	0.650
Apr 85	1.080	1.080
May 85		
Jun 85	0.670	0.670
Jul 85	0.330	0.330
Aug 85	0.900	0.900
Sep 85	0.660	0.660
	27.400	27.400

X ave. = 1.370
Sx = 0.838
Arpos = 3.012
Arneg = -0.272
NBC = 1.370

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	3.000	3.000
Nov 83	30.000	30.000
Dec 83	44.000	44.000
Jan 84	48.000	48.000
Feb 84	13.000	13.000
Mar 84	30.000	30.000
Apr 84	91.000	91.000
May 84	96.000	96.000
Jun 84	1.000	1.000
Jul 84	75.000	75.000
Aug 84	10.000	10.000
Sep 84	109.000	109.000
Oct 84	101.000	101.000
Nov 84	101.000	101.000
Dec 84	47.000	47.000
Jan 85	190.000	190.000
Feb 85	174.000	174.000
Mar 85	163.000	163.000
Apr 85	192.000	192.000
May 85	164.000	164.000
Jun 85	16.000	16.000
Jul 85	206.000	206.000
Aug 85	237.000	237.000
Sep 85	1.000	1.000
	2142.000	2142.000

X ave. = 89.250
Sx = 74.695
Arpos = 235.653
Arneg = -57.153
NBC = 89.250

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	4.000	4.000
Nov 83	22.000	22.000
Dec 83	53.000	53.000
Jan 84	45.000	45.000
Feb 84	14.000	14.000
Mar 84	3.000	3.000
Apr 84	113.000	113.000
May 84	34.000	34.000
Jun 84	4.000	4.000
Jul 84	98.000	98.000
Aug 84	4.000	4.000
Sep 84	128.000	128.000
Oct 84	15.000	15.000
Nov 84	28.000	28.000
Dec 84	133.000	133.000
Jan 85	157.000	157.000
Feb 85	185.000	185.000
Mar 85	150.000	150.000
Apr 85	230.000	230.000
May 85		
Jun 85	39.000	39.000
Jul 85	198.000	198.000
Aug 85	217.000	217.000
Sep 85	8.000	8.000
	1882.000	1882.000

X ave. = 81.826
Sx = 77.559
Arpos = 233.841
Arneg = -70.189
NBC = 81.826

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	3.000	3.000
Nov 83	15.000	15.000
Dec 83	45.000	45.000
Jan 84	71.000	71.000
Feb 84	41.000	41.000
Mar 84	5.000	5.000
Apr 84	95.000	95.000
May 84	25.000	25.000
Jun 84	89.000	89.000
Jul 84	90.000	90.000
Aug 84		
Sep 84	146.000	146.000
Oct 84	15.000	15.000
Nov 84	36.000	36.000
Dec 84		
Jan 85	191.000	191.000
Feb 85	123.000	123.000
Mar 85	149.000	149.000
Apr 85	110.000	110.000
May 85		
Jun 85	45.000	45.000
Jul 85	169.000	169.000
Aug 85	248.000	
Sep 85	33.000	33.000
	1744.000	1496.000

X ave. = 83.048
Sx = 67.738
Arpos = 215.814
Arneg = -49.719
NBC = 74.800

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	10.000	10.000
Nov 83	18.000	18.000
Dec 83	72.000	72.000
Jan 84	102.000	102.000
Feb 84	28.000	28.000
Mar 84	4.000	4.000
Apr 84	114.000	114.000
May 84	104.000	104.000
Jun 84	97.000	97.000
Jul 84	84.000	84.000
Aug 84	6.000	6.000
Sep 84	140.000	140.000
Oct 84	9.000	9.000
Nov 84	28.000	28.000
Dec 84		
Jan 85	200.000	200.000
Feb 85		
Mar 85	197.000	197.000
Apr 85	188.000	188.000
May 85	156.000	156.000
Jun 85	11.000	11.000
Jul 85	206.000	206.000
Aug 85	237.000	237.000
Sep 85	33.000	33.000
	2044.000	2044.000

X ave. = 92.909
Sx = 77.456
Arpos = 244.723
Arneg = -58.905
NBC = 92.909

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	4.000	4.000
Nov 83	32.000	32.000
Dec 83	81.000	81.000
Jan 84	60.000	60.000
Feb 84	17.000	17.000
Mar 84	23.000	23.000
Apr 84	9.000	9.000
May 84	53.000	53.000
Jun 84	161.000	161.000
Jul 84	96.000	96.000
Aug 84	11.000	11.000
Sep 84	126.000	126.000
Oct 84	94.000	94.000
Nov 84	24.000	24.000
Dec 84		
Jan 85	96.000	96.000
Feb 85	42.000	42.000
Mar 85	141.000	141.000
Apr 85	208.000	208.000
May 85	227.000	227.000
Jun 85	44.000	44.000
Jul 85	238.000	238.000
Aug 85	249.000	
Sep 85	44.000	44.000
	2080.000	1831.000

X ave. = 90.435
Sx = 78.486
Arpos = 244.268
Arneg = -63.398
NBC = 83.227

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	7.000	7.000
Nov 83	33.000	33.000
Dec 83	69.000	69.000
Jan 84	72.000	72.000
Feb 84	17.000	17.000
Mar 84	39.000	39.000
Apr 84	16.000	16.000
May 84	34.000	34.000
Jun 84	118.000	118.000
Jul 84	98.000	98.000
Aug 84	3.000	3.000
Sep 84	141.000	141.000
Oct 84	25.000	25.000
Nov 84	19.000	19.000
Dec 84	44.000	44.000
Jan 85	132.000	132.000
Feb 85	209.000	209.000
Mar 85	217.000	217.000
Apr 85	245.000	245.000
May 85	218.000	218.000
Jun 85	45.000	45.000
Jul 85	192.000	192.000
Aug 85	248.000	248.000
Sep 85	39.000	39.000
	2280.000	2280.000

X ave. = 95.000
Sx = 83.848
Arpos = 259.342
Arneg = -69.342
NBC = 95.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	3.000	3.000
Nov 83	23.000	23.000
Dec 83	70.000	70.000
Jan 84	56.000	56.000
Feb 84	49.000	49.000
Mar 84	33.000	33.000
Apr 84	13.000	13.000
May 84	59.000	59.000
Jun 84	168.000	168.000
Jul 84	95.000	95.000
Aug 84	6.000	6.000
Sep 84	156.000	156.000
Oct 84	7.000	7.000
Nov 84	56.000	56.000
Dec 84	47.000	47.000
Jan 85	135.000	135.000
Feb 85	124.000	124.000
Mar 85	128.000	128.000
Apr 85	157.000	157.000
May 85	201.000	201.000
Jun 85	38.000	38.000
Jul 85	242.000	
Aug 85	240.000	
Sep 85	48.000	48.000
	2154.000	1672.000

X ave. = 89.750
Sx = 73.530
Arpos = 233.870
Arneg = -54.370
NBC = 76.000

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	2.000	2.000
Nov 83	23.000	23.000
Dec 83	83.000	83.000
Jan 84	84.000	84.000
Feb 84	49.000	49.000
Mar 84	33.000	33.000
Apr 84	7.000	7.000
May 84	56.000	56.000
Jun 84	120.000	120.000
Jul 84	89.000	89.000
Aug 84	7.000	7.000
Sep 84	96.000	96.000
Oct 84	3.000	3.000
Nov 84	35.000	35.000
Dec 84	29.000	29.000
Jan 85	146.000	146.000
Feb 85	139.000	139.000
Mar 85	157.000	157.000
Apr 85	207.000	207.000
May 85	151.000	151.000
Jun 85	43.000	43.000
Jul 85	227.000	
Aug 85	207.000	207.000
Sep 85	24.000	24.000
	2017.000	1790.000

X ave. = 84.042
Sx = 70.106
Arpos = 221.449
Arneg = -53.366
NBC = 77.826

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	1.000	1.000
Nov 83	30.000	30.000
Dec 83	63.000	63.000
Jan 84	52.000	52.000
Feb 84	17.000	17.000
Mar 84	3.000	3.000
Apr 84	42.000	42.000
May 84	34.000	34.000
Jun 84	132.000	132.000
Jul 84	90.000	90.000
Aug 84	9.000	9.000
Sep 84	100.000	100.000
Oct 84	18.000	18.000
Nov 84	39.000	39.000
Dec 84	34.000	34.000
Jan 85	100.000	100.000
Feb 85	184.000	184.000
Mar 85	181.000	181.000
Apr 85	210.000	210.000
May 85	241.000	241.000
Jun 85	42.000	42.000
Jul 85	237.000	237.000
Aug 85	212.000	212.000
Sep 85	50.000	50.000
	2121.000	2121.000

X ave. = 88.375
Sx = 79.709
Arpos = 244.604
Arneg = -67.854
NBC = 88.375

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) SUSPENDED SOLIDS	(Xar) (Acceptance Range) SUSPENDED
Oct 83	2.000	2.000
Nov 83	2.000	2.000
Dec 83	64.000	64.000
Jan 84	73.000	73.000
Feb 84	29.000	29.000
Mar 84	10.000	10.000
Apr 84	4.000	4.000
May 84	24.000	24.000
Jun 84	38.000	38.000
Jul 84	81.000	81.000
Aug 84	5.000	5.000
Sep 84	110.000	110.000
Oct 84	17.000	17.000
Nov 84	31.000	31.000
Dec 84	3.000	3.000
Jan 85	124.000	124.000
Feb 85	205.000	205.000
Mar 85	214.000	214.000
Apr 85	216.000	216.000
May 85	156.000	156.000
Jun 85	45.000	45.000
Jul 85	206.000	206.000
Aug 85	216.000	216.000
Sep 85	38.000	38.000
	1913.000	1913.000

X ave. = 79.708
Sx = 79.843
Arpos = 236.201
Arneg = -76.784
NBC = 79.708

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	37.100	
Nov 83		
Dec 83		
Jan 84		
Feb 84		
Mar 84	1.800	1.800
Apr 84	1.400	1.400
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84		
Nov 84	0.900	0.900
Dec 84		
Jan 85		
Feb 85		
Mar 85	5.000	5.000
Apr 85		
May 85	4.000	4.000
Jun 85	2.000	2.000
Jul 85	3.000	3.000
Aug 85	0.540	0.540
Sep 85		
	56.440	19.340

X ave. = 5.644
Sx = 11.149
Arpos = 27.496
Arneg = -16.208
NBC = 2.149

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	6.200	6.200
Nov 83	4.200	4.200
Dec 83		
Jan 84		
Feb 84		
Mar 84	0.400	0.400
Apr 84	1.400	1.400
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84	1.200	1.200
Oct 84	0.800	0.800
Nov 84	0.400	0.400
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85	5.700	5.700
May 85	6.000	6.000
Jun 85		
Jul 85	5.000	5.000
Aug 85		
Sep 85		
	31.300	31.300

X ave. = 3.130
Sx = 2.494
Arpos = 8.017
Arneg = -1.757
NBC = 3.130

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	6.200	6.200
Nov 83	4.600	4.600
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84	0.700	0.700
Jun 84	2.200	2.200
Jul 84	1.100	1.100
Aug 84		
Sep 84	1.200	1.200
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85	3.800	3.800
May 85	2.000	2.000
Jun 85	4.000	4.000
Jul 85	3.000	3.000
Aug 85		
Sep 85		
	28.800	28.800

X ave. = 2.880
Sx = 1.766
Arpos = 6.342
Arneg = -0.582
NBC = 2.880

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	21.700	
Nov 83	0.600	0.600
Dec 83		
Jan 84		
Feb 84		
Mar 84	0.400	0.400
Apr 84		
May 84	0.700	0.700
Jun 84		
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85	10.000	10.000
Apr 85	7.600	7.600
May 85	1.000	1.000
Jun 85	6.000	6.000
Jul 85	4.000	4.000
Aug 85		
Sep 85		
	52.700	31.000

X ave. = 5.270
Sx = 6.712
Arpos = 18.425
Arneg = -7.885
NBC = 3.444

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	29.200	
Nov 83	1.900	1.900
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84		
May 84	0.700	0.700
Jun 84		
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85	10.000	10.000
Apr 85	1.800	1.800
May 85		
Jun 85	3.000	3.000
Jul 85	3.000	3.000
Aug 85		
Sep 85		
	50.300	21.100

X ave. = 6.288
Sx = 9.726
Arpos = 25.351
Arneg = -12.776
NBC = 3.014

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83		
Nov 83	1.500	1.500
Dec 83		
Jan 84		
Feb 84		
Mar 84	1.800	1.800
Apr 84	0.900	0.900
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85		
Apr 85	3.800	3.800
May 85	0.400	0.400
Jun 85	2.000	2.000
Jul 85	3.000	3.000
Aug 85		
Sep 85		
	14.100	14.100

X ave. = 1.763
Sx = 1.167
Arpos = 4.050
Arneg = -0.525
NBC = 1.763

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83		
Nov 83	1.900	1.900
Dec 83		
Jan 84		
Feb 84		
Mar 84	0.400	0.400
Apr 84	0.900	0.900
May 84	1.100	1.100
Jun 84	1.700	1.700
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85	1.000	1.000
Apr 85	7.600	
May 85	6.000	6.000
Jun 85	4.000	4.000
Jul 85	2.000	2.000
Aug 85		
Sep 85	1.200	1.200
	28.500	20.900

X ave. = 2.375
Sx = 2.290
Arpos = 6.863
Arneg = -2.113
NBC = 1.900

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-08

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83		
Nov 83	0.600	0.600
Dec 83		
Jan 84		
Feb 84		
Mar 84	0.900	0.900
Apr 84	0.500	0.500
May 84	1.100	1.100
Jun 84		
Jul 84		
Aug 84		
Sep 84		
Oct 84		
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85	14.000	
Apr 85	3.800	3.800
May 85	1.000	1.000
Jun 85	4.000	4.000
Jul 85	6.000	6.000
Aug 85		
Sep 85		
	31.900	17.900

X ave. = 3.544
Sx = 4.373
Arpos = 12.116
Arneg = -5.027
NBC = 2.238

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	3.000	3.000
Nov 83		
Dec 83		
Jan 84		
Feb 84		
Mar 84	0.900	0.900
Apr 84	0.900	0.900
May 84		
Jun 84		
Jul 84		
Aug 84		
Sep 84	0.700	0.700
Oct 84	0.800	0.800
Nov 84	4.200	4.200
Dec 84		
Jan 85		
Feb 85		
Mar 85	10.000	
Apr 85		
May 85		
Jun 85	3.000	3.000
Jul 85	6.000	6.000
Aug 85		
Sep 85		
	29.500	19.500

X ave. = 3.278
Sx = 3.116
Arpos = 9.386
Arneg = -2.830
NBC = 2.438

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) TURBIDITY	(Xar) (Acceptance Range) TURBIDITY
Oct 83	5.200	5.200
Nov 83	4.600	4.600
Dec 83		
Jan 84		
Feb 84		
Mar 84		
Apr 84	0.900	0.900
May 84		
Jun 84	2.200	2.200
Jul 84	1.500	1.500
Aug 84		
Sep 84	0.700	0.700
Oct 84	0.400	0.400
Nov 84		
Dec 84		
Jan 85		
Feb 85		
Mar 85	5.000	5.000
Apr 85		
May 85		
Jun 85	2.000	2.000
Jul 85	6.000	6.000
Aug 85		
Sep 85		
	28.500	28.500

X ave. = 2.850
Sx = 2.122
Arpos = 7.009
Arneg = -1.309
NBC = 2.850

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-01

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.050	0.050
Nov 83	0.050	0.050
Dec 83	0.050	0.050
Jan 84	0.040	0.040
Feb 84	0.100	0.100
Mar 84	0.060	0.060
Apr 84	0.030	0.030
May 84	0.060	0.060
Jun 84	0.010	0.010
Jul 84	0.050	0.050
Aug 84	0.080	0.080
Sep 84	0.060	0.060
Oct 84	0.090	0.090
Nov 84	0.090	0.090
Dec 84	0.050	0.050
Jan 85	0.010	0.010
Feb 85	0.040	0.040
Mar 85	0.030	0.030
Apr 85	0.090	0.090
May 85	4.900	
Jun 85	0.120	0.120
Jul 85	0.020	0.020
Aug 85	0.090	0.090
Sep 85	0.070	0.070
	6.240	1.340

X ave. = 0.260
Sx = 0.989
Arpos = 2.198
Arneg = -1.678
NBC = 0.058

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-02

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.060	0.060
Nov 83	0.430	
Dec 83	0.070	0.070
Jan 84	0.030	0.030
Feb 84	0.100	0.100
Mar 84	0.050	0.050
Apr 84	0.030	0.030
May 84	0.060	0.060
Jun 84	0.010	0.010
Jul 84	0.040	0.040
Aug 84	0.070	0.070
Sep 84	0.060	0.060
Oct 84	0.060	0.060
Nov 84	0.070	0.070
Dec 84	0.020	0.020
Jan 85	0.010	0.010
Feb 85	0.040	0.040
Mar 85	0.040	0.040
Apr 85	0.070	0.070
May 85	0.050	0.050
Jun 85	0.190	0.190
Jul 85	0.030	0.030
Aug 85	0.090	0.090
Sep 85	0.070	0.070
	1.750	1.320

X ave. = 0.073
Sx = 0.084
Arpos = 0.238
Arneg = -0.092
NBC = 0.057

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-03

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.060	0.060
Nov 83	0.130	0.130
Dec 83	0.060	0.060
Jan 84	0.040	0.040
Feb 84	0.100	0.100
Mar 84	0.050	0.050
Apr 84	0.030	0.030
May 84	0.060	0.060
Jun 84	0.030	0.030
Jul 84	0.040	0.040
Aug 84	0.070	0.070
Sep 84	0.060	0.060
Oct 84	0.050	0.050
Nov 84	0.070	0.070
Dec 84		
Jan 85	0.020	0.020
Feb 85	0.040	0.040
Mar 85	0.030	0.030
Apr 85	0.070	0.070
May 85	16.000	
Jun 85	0.120	0.120
Jul 85	0.020	0.020
Aug 85	0.080	0.080
Sep 85	0.070	0.070
	17.300	1.300

X ave. = 0.752
Sx = 3.324
Arpos = 7.267
Arneg = -5.763
NBC = 0.059

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-04

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.050	0.050
Nov 83	0.140	
Dec 83	0.070	0.070
Jan 84	0.040	0.040
Feb 84	0.110	0.110
Mar 84	0.040	0.040
Apr 84	0.030	0.030
May 84	0.050	0.050
Jun 84	0.020	0.020
Jul 84	0.050	0.050
Aug 84	0.080	0.080
Sep 84	0.060	0.060
Oct 84	0.050	0.050
Nov 84	0.060	0.060
Dec 84		
Jan 85	0.020	0.020
Feb 85	0.040	0.040
Mar 85	0.040	0.040
Apr 85	0.070	0.070
May 85	0.050	0.050
Jun 85	0.110	0.110
Jul 85	0.020	0.020
Aug 85	0.090	0.090
Sep 85	0.070	0.070
	1.360	1.220

X ave. = 0.059
Sx = 0.031
Arpos = 0.119
Arneg = -0.001
NBC = 0.055

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-05

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.140	0.140
Nov 83	0.120	0.120
Dec 83	0.070	0.070
Jan 84	0.040	0.040
Feb 84	0.100	0.100
Mar 84	0.030	0.030
Apr 84	0.030	0.030
May 84	0.060	0.060
Jun 84	0.010	0.010
Jul 84	0.050	0.050
Aug 84	0.070	0.070
Sep 84	0.050	0.050
Oct 84	0.050	0.050
Nov 84	0.060	0.060
Dec 84		
Jan 85	0.020	0.020
Feb 85	0.050	0.050
Mar 85	0.030	0.030
Apr 85	0.070	0.070
May 85	1.310	
Jun 85	0.110	0.110
Jul 85	0.020	0.020
Aug 85	0.080	0.080
Sep 85	0.060	0.060
	2.630	1.320

X ave. = 0.114
Sx = 0.263
Arpos = 0.629
Arneg = -0.401
NBC = 0.060

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-06

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.050	0.050
Nov 83	0.120	
Dec 83	0.070	0.070
Jan 84	0.040	0.040
Feb 84	0.100	0.100
Mar 84	0.050	0.050
Apr 84	0.050	0.050
May 84	0.060	0.060
Jun 84	0.020	0.020
Jul 84	0.060	0.060
Aug 84	0.080	0.080
Sep 84	0.060	0.060
Oct 84	0.050	0.050
Nov 84	0.050	0.050
Dec 84	0.040	0.040
Jan 85	0.020	0.020
Feb 85	0.040	0.040
Mar 85	0.030	0.030
Apr 85	0.070	0.070
May 85	0.050	0.050
Jun 85	0.140	
Jul 85	0.020	0.020
Aug 85	0.080	0.080
Sep 85	0.070	0.070
	1.420	1.160

X ave. = 0.059
Sx = 0.030
Arpos = 0.117
Arneg = 0.001
NBC = 0.053

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-07

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.210	
Nov 83	0.070	0.070
Dec 83	0.060	0.060
Jan 84	0.030	0.030
Feb 84	0.100	0.100
Mar 84	0.050	0.050
Apr 84	0.040	0.040
May 84	0.060	0.060
Jun 84	0.010	0.010
Jul 84	0.060	0.060
Aug 84	0.080	0.080
Sep 84	0.070	0.070
Oct 84	0.040	0.040
Nov 84	0.050	0.050
Dec 84	0.030	0.030
Jan 85	0.020	0.020
Feb 85	0.050	0.050
Mar 85	0.030	0.030
Apr 85	0.070	0.070
May 85	0.040	0.040
Jun 85	0.130	0.130
Jul 85	0.030	0.030
Aug 85	0.080	0.080
Sep 85	0.070	0.070
	1.480	1.270

X ave. = 0.062
Sx = 0.041
Arpos = 0.143
Arneg = -0.019
NBC = 0.055

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-09

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.140	
Nov 83	0.070	0.070
Dec 83	0.070	0.070
Jan 84	0.030	0.030
Feb 84	0.110	0.110
Mar 84	0.050	0.050
Apr 84	0.040	0.040
May 84	0.070	0.070
Jun 84	0.010	0.010
Jul 84	0.060	0.060
Aug 84	0.070	0.070
Sep 84	0.070	0.070
Oct 84	0.040	0.040
Nov 84	0.070	0.070
Dec 84	0.030	0.030
Jan 85	0.130	0.130
Feb 85	0.050	0.050
Mar 85	0.020	0.020
Apr 85	0.070	0.070
May 85	0.050	0.050
Jun 85	0.120	0.120
Jul 85	0.020	0.020
Aug 85	0.080	0.080
Sep 85	0.070	0.070
	1.540	1.400

X ave. = 0.064
Sx = 0.034
Arpos = 0.131
Arneg = -0.003
NBC = 0.061

X ave. = Average of Xi
Sx = Standard Deviation of Xl
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar

NBC DETERMINATION
RW-10

Month	(Xi) ZINC	(Xar) (Acceptance Range) ZINC
Oct 83	0.110	0.110
Nov 83	0.090	0.090
Dec 83	0.090	0.090
Jan 84	0.030	0.030
Feb 84	0.100	0.100
Mar 84	0.050	0.050
Apr 84	0.040	0.040
May 84	0.050	0.050
Jun 84	0.010	0.010
Jul 84	0.060	0.060
Aug 84	0.070	0.070
Sep 84	0.070	0.070
Oct 84	0.040	0.040
Nov 84	0.080	0.080
Dec 84	0.020	0.020
Jan 85	0.130	0.130
Feb 85	0.050	0.050
Mar 85	0.030	0.030
Apr 85	0.070	0.070
May 85	0.050	0.050
Jun 85	0.140	
Jul 85	0.030	0.030
Aug 85	0.080	0.080
Sep 85	0.070	0.070
	1.560	1.420

X ave. = 0.065
Sx = 0.033
Arpos = 0.131
Arneg = -0.001
NBC = 0.062

X ave. = Average of Xi
Sx = Standard Deviation of X1
Xar = Xi's within Acceptance Range
Arpos = X ave. + (1.96 * Sx)
Arneg = X ave. - (1.96 * Sx)
NBC = Average of Xar