W + C

DATA DOCUMENTATION FORM

77-0477

TR 1511
F014

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL ENVIRONMENTAL SATELLITE SERVICE
NATIONAL OCEANOGRAPHIC DATA CENTER
ROCKVILLE, MARYLAND 20852

This form should accompany all data submissions to NODC. Section A. Originator Identification. must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

DDF A:4:01

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM02B

PHYSICS VCL002

~~VCLM2BC~~ "014"

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES) PLATFORM	OPERATOR	7. DATES FROM	TO
G.W. Pierce	SHIP	G.W. Pierce	Tracor Marine	13/02/76	23/03/76

8. ARE DATA PROPRIETARY?

[X] NO [ ] YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ___ MONTH ___

9. ARE DATA DECLARED NATIONAL PROGRAM (NP)? (I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

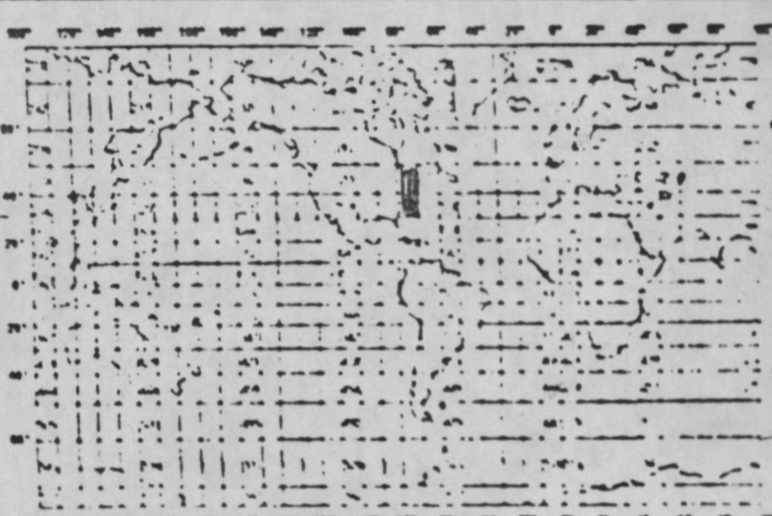
[ ] NO [ ] YES [ ] PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



NOAA FORM 24-13

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHOD OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH EDITING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinats to Latitude & Longitude
Latitudinal Hemisphere	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Wrist Watch Checked daily with WWV		
Water depth	to nearest tenth of a meter	Hydroproducts ODR		
Water sample depth	to nearest meter	CTD Neil Brown by ITT		
Surface water temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Sediment temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Barometric pressure	millibars, tens to tenths	Barograph-Castella of London		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's compass		
Wind Speed	knots	Anemometer Taylor Windscope Model 3105		
Wave direction	tens of degrees WMO Code 0877	Ship's Compass		
Wave Height	1/2 meters WMO Code 1555	Vis. Obs.		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell Height	1/2 meters WMO Code 1555	Vis. Obs.		
Weather	WMO Code 4677	Vis. Obs.		
Sea type	WMO Codes 0513, 0515, 0509	Vis. Obs.		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4300	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil Brown CTD model MK III	N/A	Frequencies averaged over 1 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_4	PPM	Niskin bottles on Rosette	Technicon industrial method #158 AAII modified #170-72W	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN ☐ PL-I ☐ ALGOL ☐ OBOL ☒ FORTRAN ☐ _____ ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE ☐ BCD ☐ BINARY ☐ ASCII ☒ EBCDIC ☐ _____

6. NUMBER OF TRACKS (CHANNELS) ☐ SEVEN ☒ NINE ☐ _____

7. PARITY ☒ ODD ☐ EVEN

8. DENSITY ☐ 200 BPI ☒ 1600 BPI ☐ 556 BPI ☐ 800 BPI ☐ _____

9. LENGTH OF RECORD GAPS (IF KNOWN) ☐ 3/4 INCH ☒ 0.6 inch

10. END OF FILE MARK ☐ OCTAL 17 ☐ _____

11. PASTE-ON OR OTHER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND FORMAT SPECIFICATIONS OF DATA IF VOLUME NUMBER)

VCL002
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM02B
File Label: WPHYSICS.76/05/31

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

NOAA FORM 24-13

RECORD NAME FILE HEADER

14. FIELD NAME	15. POSITION FROM MEASURED IN BYTES (e.g. bits, bytes)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day- Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

	[illegible]	NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminators					
[illegible]	–	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header reco[illegible]
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement techniq[illegible] (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. LOCATION FROM-1 MEASURED IN (e.g., Bits, Bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=GRAB 7=Meteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM 1 MEASURED IN BYTES (OR BINARY BITS)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "3" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record 2
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3.	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Byted	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
O-PO_4	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.003)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank

*Decimal place is IMPLIED: "period" is not present.

Navigation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the DBT (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (√)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (√)	BEFORE OR AFTER USE (√)	BEFORE AND AFTER USE (√)	ONLY AFTER REPAIR (√)	ONLY WHEN NEW (√)	(√)
Neil Brown Instr. CTD MK III	Oct. 1975		Neil Brown Instr.					X	
Beckman Minds D.O. Sensor	Nov. 1975	X				X			
Beckman Inductive Salinometer RS7B		X		* X Annually					

*Calibrated Annually Checked w/Copenhagen Water after 200 samples

Rec'd 5/31/77 w. +C

77-0477
TR 1512

DATA DOCUMENTATION FORM

NOAA FORM 24-13
10-75)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
ENVIRONMENTAL DATA SERVICE
ROCKVILLE, MARYLAND 20852

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1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED:

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM73B VCM 270
WPHYSICS. 76/05/25

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM (MO/DA/YR)	TO (MO/DA/YR)
R/V J. M. Gilliss	SHIP	R/V J. M. Gilliss	University of Miami	06/14/76	06/24/76

8. ARE DATA PROPRIETARY?

[X] NO [ ] YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ___ MONTH ___

9. ARE DATA DECLARED NATIONAL PROGRAM (CNP)?

(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

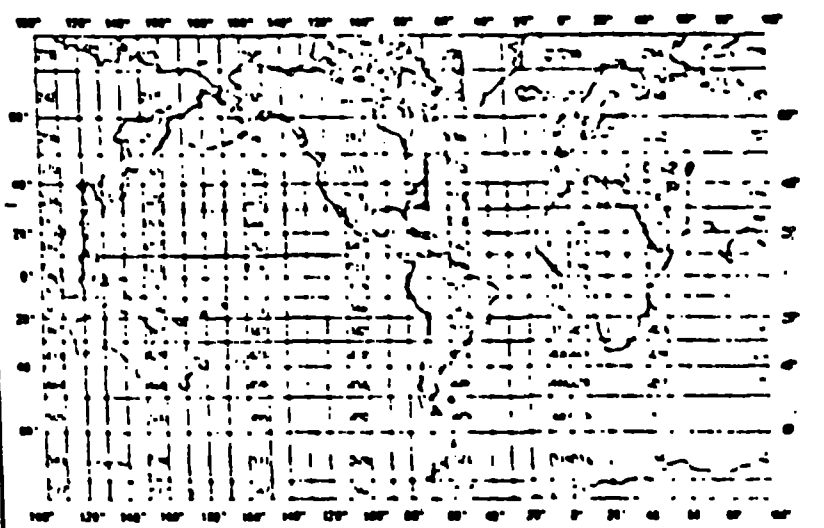
[X] NO [ ] YES [ ] PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



NOAA FORM 24-13

B. SCIENTIFIC CONTENT

NAME DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH ERROR TRAPPING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinates to latitude & longitude
Latitudinal Hemis.	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Wrist Watch Checked daily with WWV		
Water depth	to nearest tenth of a meter	Hydroproducts PDR		
Water sample depth	to nearest meter	CTD Neil Brown MK III		
Surface water temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Sediment temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Barometric pressure	millibars, tens to tenths	Barograph-Castella of London		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's compass		
Wind Speed	knots	Anemometer Taylor Windscope Model 3105		
Wave direction	tens of degrees WMO Code 0877	Ship's Compass		
Wave height	1/2 meters WMO Code 1555	Vis. Obs.		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell Height	1/2 meters WMO Code 1555	Vis. Obs.		
Weather	WMO Code 4677	Vis. Obs.		
Cloud type	WMO Codes 0513, 0515, 0509	Vis. Obs.		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 43[illegible]	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil Brown CTD model MK III	N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, termin tor sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN [ ] PL-1 [ ] ALGOL [ ] OBOL [X] FORTRAN [ ] _____ [ ] _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE [ ] BCD [ ] BINARY [ ] ASCII [X] EBCDIC [ ] _____

6. NUMBER OF TRACKS (CHANNELS) [ ] SEVEN [X] NINE [ ] _____

7. PARITY [X] ODD [ ] EVEN

8. DENSITY [ ] 200 BPI [X] 1600 BPI [ ] 556 BPI [ ] 800 BPI [ ] _____

9. LENGTH OF RECORD GAPS (IF KNOWN) [ ] 3/4 INCH [X] 0.6 inch

10. END OF FILE MARK [ ] OCTAL 17 [ ] _____

11. PAPER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND SOURCE LANGUAGE SPECIFICATIONS OF DATA FILE, VOLUME NUMBER, HOUSING, ETC.)
VCM270
Va. Inst. of Marine Sc.
Water Physics & Chemistry
BLM03B
File Label: WPHYSICS.76/05/25

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

NOAA FORM 24-13 USCOMM-DC 44280-P76

RECORD NAME FILE HEADER

14. FIELD NAME	15. POSITION IN RECORD (e.g. BYTE, WORD)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day- Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

		NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminator					
Ident	-	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header reco
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement technic (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. LOCATION FROM-1 MEASURED IN (e.g. Bits, Bytes)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=[illegible] 7=Meteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

NOAA FORM 24-13

USCOMM-DC [illegible]

RECORD FORMAT DESCRIPTION

RECORD NAME

14. FIELD NAME	15. POSITION FROM-TO MEASURED IN ___ (FIELD/RECORD)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "5" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sampl[illegible]
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
$O\text{-}PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/[illegible]
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"998" (constant)
Blank	14	67	Bytes	67X	Blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank

*Decimal place is IMPLIED: "period" is not present.

vigation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the DDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (✓)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (✓)	BEFORE OR AFTER USE (✓)	BEFORE AND AFTER USE (✓)	ONLY AFTER REPAIR (✓)	ONLY WHEN NEEDED (✓)	(✓)
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓	*	* ✓ Annually					

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*Calibrated Annually Checked with Copenhagen water After 200 Samples

Rec'd 5/31/77

77-0477
TR 1513

DATA DOCUMENTATION FORM

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

This form should accompany all data submissions to NODC. Section A. Originator Identification. must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED:

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM 04B VCM 274 WPNVSICS. 76/05/76

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM (MO/DA/YR)	TO (MO/DA/YR)
G.W. Pierce	SHIP	G.W. Pierce	Tracor Marine	08/14/76	09/02/76

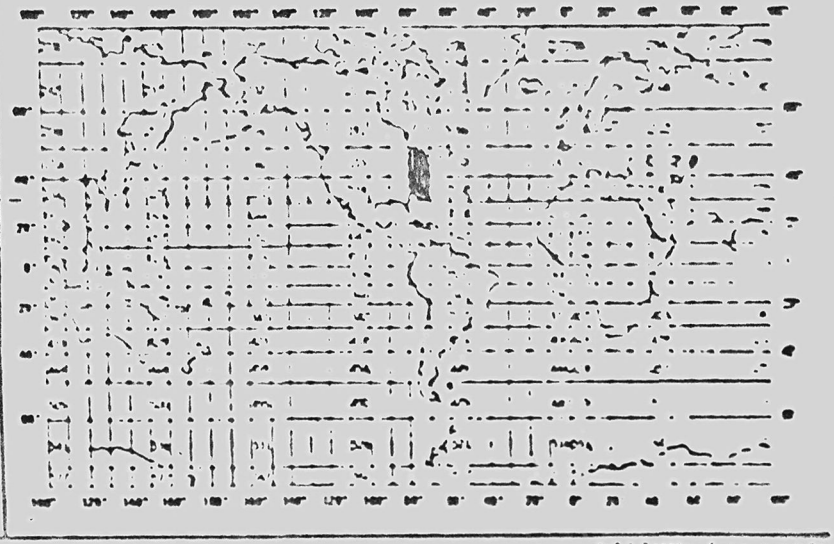
8. ARE DATA PROPRIETARY?

☒ NO ☐ YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ____ MONTH ____

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



9. ARE DATA CLEARED NATIONAL PROGRAM ONLY? (I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

☐ NO ☐ YES ☐ PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

NOAA FORM 24-13

8. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH EDITING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinates to Latitude & Longitude
Latitudinal Hemisphere	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Wrist watch Checked daily with WWV		
Water depth	to nearest tenth of a meter	Hydroproducts FDR		
Water sample depth	to nearest meter	CTD Neil Brown MK III		
Surface water temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Sediment temperature	°C to nearest tenth	Mercury Inglass Stem Thermometer		
Barometric pressure	millibars, tens to tenths	Barograph-Castella of London		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's compass		
Wind Speed	knots	Anemometer Taylor Windscope Model 3105		
Wave direction	tens of degrees WMO Code 0877	Ship's Compass		
Wave height	1/2 meters WMO Code 1555	Vis. Obs.		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell Height	1/2 meters WMO Code 1555	Vis. Obs.		
Weather	WMO Code 4677	Vis. Obs.		
Cloud type	WMO Codes 0513, 0515, 0509	Vis. Obs.		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4377	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil Brown CTD model MK III	N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN ☐ PL-1 ☐ ALGOL ☐ OBOL ☒ FORTRAN ☐ _____ ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE ☐ BCD ☐ BINARY ☐ ASCII ☒ EBCDIC

6. NUMBER OF TRACKS (CHANNELS) ☐ SEVEN ☒ NINE

7. PARITY ☒ ODD ☐ EVEN

8. DENSITY ☐ 200 BPI ☒ 1600 BPI ☐ 556 BPI ☐ 800 BPI

9. LENGTH OF RECORD GAPS (IF KNOWN) ☐ 3/4 INCH ☒ 0.6 inch

10. END OF FILE MARK ☐ OCTAL 17

11. PASTE-ON LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND TAPE SPECIFICATIONS OF DATA TAPE VOLUME NUMBER)
VCM274
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM04B
File Label: WPHYSICS.76/05/26

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

NOAA FORM 24-13

RECORD NAME FILE HEADER

14. FIELD NAME	15. POSITION FROM HEADER IN BYTES	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11.	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day- Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

[illegible]	[illegible]	NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminators					
Ident	-	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header reco[illegible]
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement techniq[illegible] (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN (e.g., Bits, bytes)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified) 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=GRAB 7=Matericiological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME ____________

14. FIELD NAME	15. POSITION FROM BEGINNING OF RECORD	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "3" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record 3
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppt)
$O\text{-}PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L)
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.003)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67 X	Blank

*Decimal place is IMPLIED: "period" is not present.

igation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
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04 = Raydist with errors, drifting, etc.
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Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
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INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED (✓)
		YOUR ORGANIZATION (✓)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (✓)	BEFORE OR AFTER USE (✓)	BEFORE AND AFTER USE (✓)	ONLY AFTER REPAIR (✓)	ONLY WHEN NEW (✓)	
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓		* ✓ Annually					

NOAA FORM 24-13

*Calibrated Annually Checked with Copenhagen water After 200 Samples

REC'D 5/31/77 W+C

77-0477

JR1514

DATA DOCUMENTATION FORM

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R2651

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A. ORIGINATOR IDENTIFICATION

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Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM04G VCM 276 W PHYSICS. 76/05/24

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM: MO/DAY/YR	TO: MO/DAY/YR
R/V John Smith	Ship	R/V John Smith	VIMS	9/12/76	9/14/76

8. ARE DATA PROPRIETARY?

[X] NO [ ] YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ____ MONTH ____

9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)?
(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

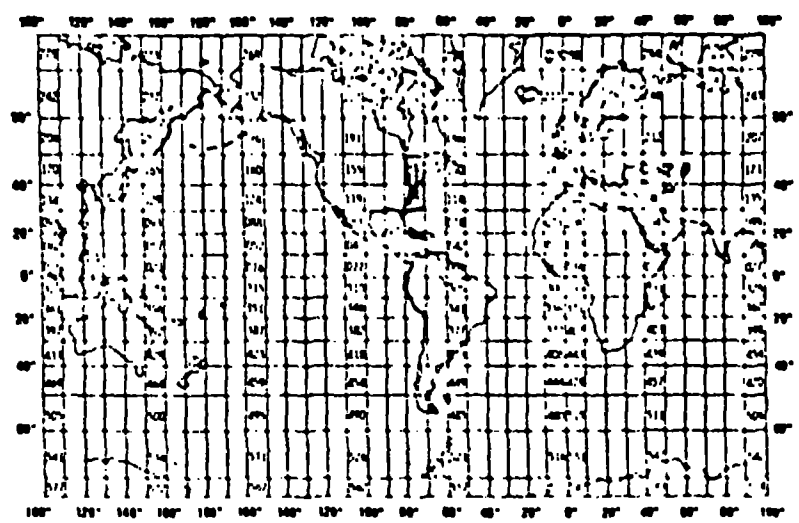
[X] NO [ ] YES [ ] PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM-1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23061
804-642-2111

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



CRUISE ALL 0218

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinats to Latitude & Longitude
Latitudinal Hemis.	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Ships chronometer checked w/ WWV		
Water depth	to nearest tenth of a meter	EDR Hydroproducts		
Water sample depth	to nearest meter	Neil Brown Ltd. MK III		
Surface water temperature	°C to nearest tenth	Stem thermometer		
Sediment temperature	°C to nearest tenth	Stem thermometer		
Barometric pressure	millibars, tens to tenths	Ships Barometer		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's anemometer Bendix-Friez Model 120/135		
Wind Speed	Knots	Ship's anemometer Bendix-Friez Model 120/135		
Wave direction	tens of degrees WMO Code 0877	Ship's compass		
Wave height	1/2 meters WMO Code 1555	Visual estimate		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell height	1/2 meters WMO Code 1555	Visual estimate		
Weather	WMO Code 4677	Visual estimate		
Cloud type	WMO Codes 0513, 0515, 0509	Visual estimate		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4300	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil Brown CTD model MK III	N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN ☐ PL-1 ☐ ALGOL ☐ OBOL
☒ FORTRAN ☐ _____ ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE
☐ BCD ☐ BINARY
☐ ASCII ☒ EBCDIC
☐ _____

6. NUMBER OF TRACKS (CHANNELS)
☐ SEVEN
☒ NINE
☐ _____

7. PARITY
☐ ODD
☐ EVEN

8. DENSITY
☐ 200 BPI ☒ 1600 BPI
☐ 556 BPI
☐ 800 BPI
☐ _____

9. LENGTH OF RECORD GAPS (IF KNOWN)
☐ 3/4 INCH
☒ 0.6 inch

10. END OF FILE MARK
☐ OCTAL 17
☐ _____

11. PASTE-ON OR OTHER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND SOME LAST SPECIFICATIONS OF DATA SET, VOLUME NUMBER)
VCM276
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM04G
File Label: WPHYSICS.76/05/24

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

NOAA FORM 24-13

RECORD NAME FILE HEADER

14. FIELD NAME	15. POSITION FROM PRIMARY MEASURED IN BYTES (e.g., BITS, BYTES)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	21	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day- Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

	[illegible]	NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminators					
Ident	-	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header record)
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement technique (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. LOCATION FROM 1 MEASURED IN (e.g., Bits, Bytes)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1, I2)	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=[illegible] 7=Bacteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME ______

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN...	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "5" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
$O\text{-}PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L)
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"998" (constant)
Blank	14	67	Bytes	67X	Blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67 X	Blank

*Decimal place is IMPLIED: "period" is not present.

Navigation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the DDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED (✓)
		YOUR ORGANIZATION (✓)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (✓)	BEFORE OR AFTER USE (✓)	BEFORE AND AFTER USE (✓)	ONLY AFTER REPAIR (✓)	ONLY WHEN NEW (✓)	
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓		* ✓ Annually					

*Calibrated Annually Checked with Copenhagen water After 200 Samples

Rec'd 5/31/77 [illegible]

77-0477
TR1515

DATA DOCUMENTATION FORM

NOAA FORM 24-13 (4-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R2651

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

VCM 27B
BLM04T WPHYSICS. 76/05/24

4. PLATFORM NAME(S)

R/V Cape Henlopen

5. PLATFORM TYPE(S) *(E.G., SHIP, BUOY, ETC.)*

Ship

6. PLATFORM AND OPERATOR NATIONALITY(IES)

PLATFORM	OPERATOR
R/V Cape Henlopen	University of Delaware

7. DATES

FROM MO/DAY/YR	TO MO/DAY/YR
08/23/75	08/27/75

8. ARE DATA PROPRIETARY?

[X] NO [ ] YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ____ MONTH ____

9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)? (I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

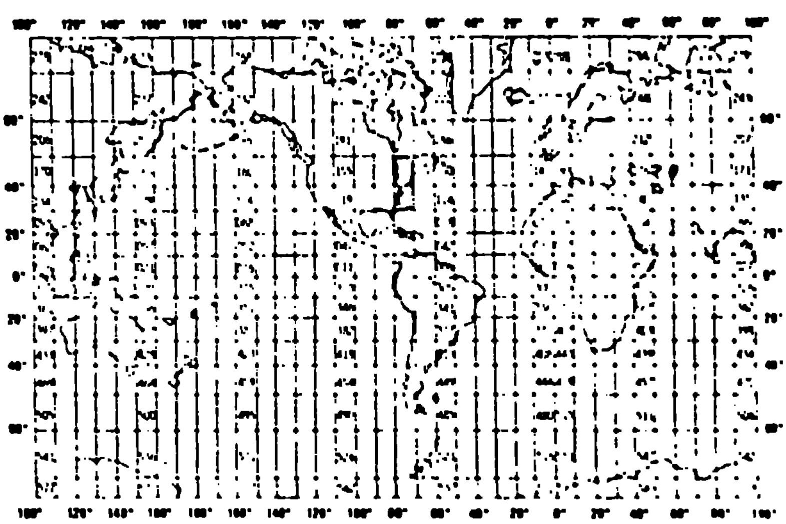
[X] NO [ ] YES [ ] PART *(SPECIFY BELOW)*

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER *(AND ADDRESS IF OTHER THAN IN ITEM-1)*

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



NOAA FORM 24-13

USCOMM-DC

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran "C" SI:RAD Model LC101		Program used to convert from LORAN C coordinant to Lat. & Long.
Latitudinal Hemisphere	N or S			
Longitudinal Hemisphere	E or W			
Station time	Hrs. to nearest tenth of an hour	Wrist watch checked daily with WWV		
Water depth	To nearest tenth of a meter	Hydroprocuets PDR		
Water sample depth	To nearest meter	Bio Nell Brown MK III		
Surface water temperature	°C to nearest tenth	Mercury in glass stem thermometer		
Barometric pressure	Millibars, nanobrods to tenths	Barograph-Castella of London		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind direction	Tens of Degrees WMO code 0877	Ship's compass		
Wind speed	Knots	Anemometer Taylor Windscope Model 3105		
Wave direction	Tens of Degrees WMO code 0877	Ship's compass - Visual observation		
Wave height	1/2 Meters WMO code 1555	Visual observation		
Swell direction	Tens of Degrees WMO code 0877	Ship's compass - Visual observation		
Swell height	1/2 Meters WMO code 1555	Visual observation		
Weather	WMO code 4677	Visual observation		
Cloud type	WMO codes 0509, 0515, 0500	Visual observation		
Cloud cover	WMO code 2700	Visual observation		
[illegible]	[illegible]	[illegible]		
Wave period	Seconds	Wrist watch - Visual observation		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4377	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette Neil Brown CTD model MK III	Inductive Salinometer Beckman R S 7-B	N/A
			N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette Beckman minos D.O. Sensor	Azide modification to Winkler Titration	N/A
			N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN [ ] PL-1 [ ] ALGOL [ ] COBOL [X] FORTRAN [ ] ______ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE: [ ] BCD [ ] BINARY [ ] ASCII [X] EBCDIC

6. NUMBER OF TRACKS (CHANNELS): [ ] SEVEN [X] NINE

7. PARITY: [X] ODD [ ] EVEN

8. DENSITY: [ ] 200 BPI [X] 1600 BPI [ ] 556 BPI [ ] 800 BPI

9. LENGTH OF INTER-RECORD GAP (IF KNOWN): [ ] 3/4 INCH [X] 0.6 inch

10. END OF FILE MARK: [ ] OCTAL 17

11. PASTE-ON OR OTHER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND YOUR LABEL SPECIFICATIONS OF DATA TAPE, VOLUME NUMBER)

VCM278
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM04T
File Label: 'WPHYSICS.76/05/24'

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

RECORD NAME FILE HEADER

14. FIELD NAME	15. [illegible]	16. LENGTH		17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day-Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

Field Name	Start Position	NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminator					
Ident	–	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header record)
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement technique (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. POSITION FROM 1 MEASURED IN BYTES (e.g. bits, bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 = Loran (mixed or unspecified) 02 = Radar and/or fixes 03 = Raydist without complications 04 = Raydist with errors, drifting etc. 05 = Satellite 06 = Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1 = CTD 2 = XBT 3 = Water Bottles 4 = CTD & Water Bottles 5 = CTD, Water Bottles, & XBT 6 = GRAB 7 = Materiological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME _____

14. FIELD NAME	15. POSITION FROM 1 MEASURED IN BYTES (OR BITS, WHERE SPECIFIED)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "3" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_3	54	4	Bytes	F4.3*	Ammonia (ppm)
$O-PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L)
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
SCALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank

*Decimal place is IMPLIED: "period" is not present.

igation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the BDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (✓)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (✓)	BEFORE OR AFTER USE (✓)	BEFORE AND AFTER USE (✓)	ONLY AFTER REPAIR (✓)	ONLY WHEN NEW (✓)	(✓)
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓		* ✓ Annually					

NOAA FORM 76-35

*Calibrated Annually Checked with Copenhagen water After 200 Samples

77-0477 TR1516

DATA DOCUMENTATION FORM

Rec'd 5/31/77

NOAA FORM 24-13 (6-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R2651

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM02W VCM 266
WPHYSICS. 76/05/24

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM: MO/DAY/YR	TO: MO/DAY/YR
G W Pierce	Ship	G W Pierce	Tracor Marine	02/04/76	02/17/76

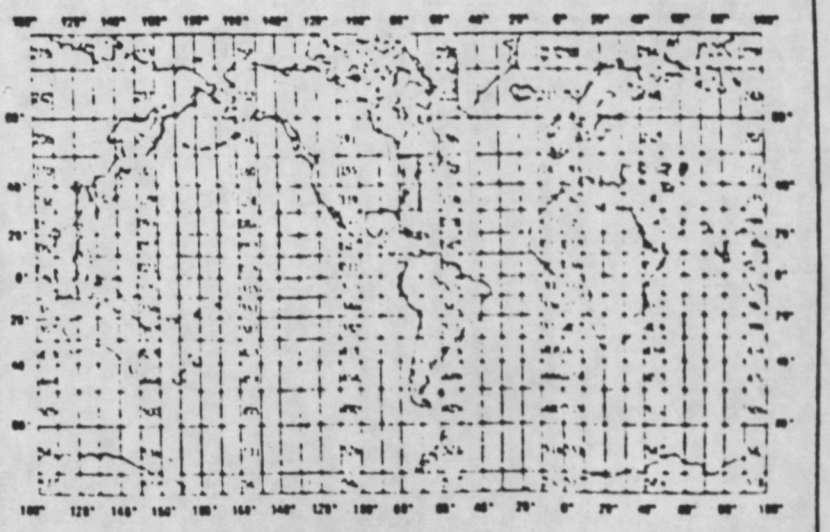
8. ARE DATA PROPRIETARY?

☒ NO ☐ YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ___ MONTH ___

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



9. ARE DATA DECLARED NATIONAL OCEANOGRAPHIC PROGRAM (ONP)?

(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

☒ NO ☐ YES ☐ PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

NOAA FORM 24-13

USCOMM-DC 66289-P72

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran "C" SIMRAD Model LC101		Program used to convert from LORAN C coordinant to Lat. & Long.
Latitudinal Hemisphere	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Wrist watch checked daily with WWV		
Water depth	to nearest tenth of a meter	Hydroproducts PDR		
Water sample depth	to nearest meter	CTD Neil Brown MK III		
Surface water temperature	°C to nearest tenth	Mercury in glass stem thermometer		
Barometric pressure	millibars, hundreds to tenths	Barograph-Castella of London		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind direction	tens of degrees WMO code 0877	Ship's compass		
Wind speed	Knots	Anemometer Taylor Wind-score Model 3105		
Wave direction	tens of degrees WMO code 0877	Ship's compass - Visual observation		
Wave height	1/2 meters WMO code 1555	Visual observation		
Swell direction	tens of degrees WMO code 0877	Ship's compass - visual observation		
Swell height	1/2 meters WMO code 1555	Visual observation		
Weather	WMO code 4677	Visual observation		
Cloud type	WMO codes 0513, 0515, 0509	Visual observation		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4377	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette Neil Brown CTD model MK III	Inductive Salinometer Beckman R S 7-B	N/A
			N/A	Frequencies averaged over 1 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette Beckman minos D.O. Sensor	Azide modification to Winkler Titration	N/A
			N/A	Values averaged over 1 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_4	PPM	Niskin bottles on Rosette	Technicon industrial method #158 AAII modified #170-72W	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-15
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-15.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN [ ] PL-1 [ ] ALGOL [ ] OBOL [X] FORTRAN [ ] _____ [ ] _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE: [ ] BCD [ ] BINARY [ ] ASCII [X] EBCDIC [ ] _____

6. NUMBER OF TRACKS (CHANNELS): [ ] SEVEN [X] NINE [ ] _____

7. PARITY: [X] ODD [ ] EVEN

8. DENSITY: [ ] 200 BPI [X] 1600 BPI [ ] 556 BPI [ ] 800 BPI [ ] _____

9. LENGTH OF INTER-RECORD GAP (IF KNOWN): [ ] 3/4 INCH [X] 0.6 inch

10. END OF FILE MARK: [ ] OCTAL 17 [ ] _____

11. PASTE-ON OTHER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND TAPE LAYOUT SPECIFICATIONS OF DATA FILE VOLUME NUMBER):
VCM266
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM02W
File Label: WPHYSICS.76/05/24

12. PHYSICAL BLOCK LENGTH IN BYTES: 80

13. LENGTH OF BYTES IN BITS: 8

NOAA FORM 24-13

RECORD NAME FILE HEADER

14. FIELD NAME	15. [illegible] POSITION [illegible]	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day-Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

FIELD NAME	FORMAT POSITION NUMBER	UNITS	(FORTRAN)	
Record Type "2" Terminator				
Ident	-	10 Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3 Chars	A3	"999" (constant)
Blank	14	67 Bytes	67X	Blank
Sample Header Record 2				
File Type	1	3 Chars	A3	"014" (constant)
File Date	4	6 Bytes	3I2	year, month, day of file generation
Record Type	10	1 Char	A1	"3" (second sample header record)
Sequence	11	3 Bytes	I3	Sequence of this record type within sample
Sample	14	5 Chars	5A1	Sample number identifier
Barometer	19	3 Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4 Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4 Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2 Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2 Bytes	I2	Knots
Wave Direction	34	2 Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1 Byte	I1	WMO code 1555
Swell Direction	37	2 Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1 Byte	I1	WMO code 1555
Weather	40	2 Bytes	I2	WMO code 4677
Cloud type	42	3 Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1 Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1 Byte	I1	WMO code 4300
Blank	47	1 Byte	1X	Blank
Turbidity	48	1 Byte	I1	Turbidity measurement technique (see attached codes)
Wave Period	49	2 Bytes	I2	Seconds
Swell Period	51	2 Bytes	I2	Seconds
SEA SFC Temp	53	3 Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25 Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

FIELD NAME	15. LOCATION FROM-1 MEASURED IN (e.g. Bits, Bytes)	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem.	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem.	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=BRAS 7=Meteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME

14. FIELD NAME	15. LOCATION FROM BEGINNING OF RECORD	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "5" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
$O\text{-}PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L)
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
SCALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67 X	Blank

*Decimal place is IMPLIED: "period" is not present.

Navigation:

01 = Loran (mixed or unspecified)
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INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (√)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (√)	BEFORE OR AFTER USE (√)	BEFORE AND AFTER USE (√)	ONLY AFTER REPAIR (√)	ONLY WHEN NEW (√)	(√)
Neil Brown Instr. CTD MK III	Oct. 1975		Neil Brown Instr.					✓	
Beckman Minds D. O. Sensor	Nov. 1975	✓				✓			
Beckman Inductive Salinometer RS 7B		✓		* ✓ Annually					

AA FORM 76-13 USCOMM-DC 44180-P78

*Calibrated Annually Checks with Copenhagen Water After 200 Samples

2

NUMBER Rec'd 6/9/77

DATA DOCUMENTATION FORM

corrected DDF 77-0477

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R[illegible]

TR1517

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

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1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM03W VCM 272
WPHYS105. 014

4. PLATFORM NAME(S)

R/V Virginian Sea

5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)

Ship

6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
PLATFORM	OPERATOR	FROM: MO/DAY/YR	TO: MO/DAY/YR
R/V Virginian Sea	VIMS	06/07/76	06/17/76

8. ARE DATA PROPRIETARY?

[X] NO [ ] YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ___ MONTH ___

9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)?
(I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?)

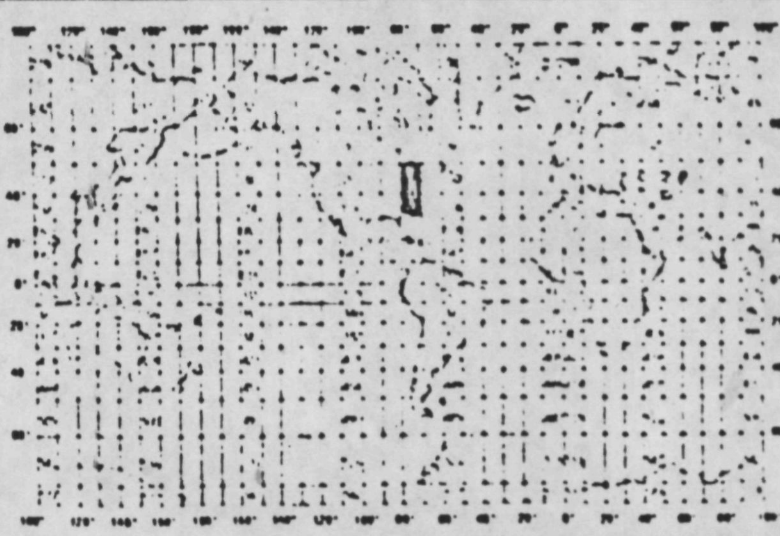
[X] NO [ ] YES [ ] PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



CRUISE ... 001B

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinats to Latitude & Longitude
Latitudinal hemi...	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Ships chronometer checked w/ WWV		
Water depth	to nearest tenth of a meter	TDR Hydroproducts		
Water sample depth	to nearest meter	Neil Brown Ltd. MK III		
Surface water temperature	°C to nearest tenth	Stem thermometer		
Sediment temperature	°C to nearest tenth	Stem thermometer		
Barometric pressure	millibars, tens to tenths	Ships Barometer		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's annemometer Bendix-Friez Model 120/135		
Wind Speed	knots	Ship's annemometer Bendix-Friez Model 120/135		
Wave direction	tens of degrees WMO Code 0877	Ship's compass		
Wave height	1/2 meters WMO Code 1555	Visual estimate		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell height	1/2 meters WMO Code 1555	Visual estimate		
Weather	WMO Code 4677	Visual estimate		
Cloud type	WMO Codes 0513, 0515, 0509	Visual estimate		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4300	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil brown CTD model MK III	N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN
- [ ] PL-1
- [X] FORTRAN
- [ ] ALGOL
- [ ] COBOL
- [ ] ______ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE
- [ ] BCD
- [ ] BINARY
- [ ] ASCII
- [X] EBCDIC

6. NUMBER OF TRACKS (CHANNELS)
- [ ] SEVEN
- [X] NINE

7. PARITY
- [X] ODD
- [ ] EVEN

8. DENSITY
- [ ] 200 BPI
- [X] 1600 BPI
- [ ] 556 BPI
- [ ] 800 BPI

9. LENGTH OF INTER-RECORD GAP (IF KNOWN)
- [ ] 3/4 INCH
- [X] 0.6 inch

10. END OF FILE MARK
- [ ] OCTAL 17

11. PASTE-ON TAPE LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND TAPE PHYSICAL SPECIFICATIONS OF DATA FILE VOLUME NUMBER)

VCM272
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM03W
File Label: WPHYSICS.76/05/25

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

RECORD NAME FILE [illegible]

14. FIELD NAME	15. DATA [illegible] POSITION	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5(I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day-Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

				(FORTRAN)	
		NUMBER	UNITS		
Record Type "2" Terminators					
Ident	-	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"D14" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"2" (second sample header record)
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement technique (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

FIELD NAME	STARTING POSITION FROM LEFT (No. Bytes)	LENGTH NUMBER	LENGTH UNITS	ATTRIBUTES (FORTRAN)	USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1, I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	F5.1*	Water depth (meters)
Navigation	50	2	Bytes	I2	Navigation method 01 =Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=[illegible] 7=Meteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME ______________________________

14. FIELD NAME	15. POSITION FROM [illegible]	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES	18. USE AND MEANING
<u>Record Type "5" Terminator</u>					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
<u>Data Record</u>					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sampl[illegible]
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
$O\text{-}PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/[illegible]
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/[illegible]
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
<u>Data Record Terminator</u>					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"998" (constant)
Blank	14	67	Bytes	67X	Blank
<u>File Terminator</u>					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank

*Decimal place is IMPLIED: "period" is not present.

avigation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the DDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (√)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (√)	BEFORE OR AFTER USE (√)	BEFORE AND AFTER USE (√)	ONLY AFTER REPAIR (√)	ONLY WHEN NEW (√)	(√)
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓		* ✓ Annually					

*Calibrated Annually Checked with Copenhagen water After 200 Samples

NUMBER 2 77-0477

TR 1518

DATA DOCUMENTATION FORM

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN DATA CENTER
ROCKVILLE, MARYLAND 20852

FORM APPROVED
O.M.B. No. 41-R.051

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED

Virginia Institute of Marine Science
Gloucester Point, Virginia 23062

2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED

BLM

3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT

BLM04W VLM 280
WPHYSICS. 76/05/25

4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)		7. DATES	
		PLATFORM	OPERATOR	FROM MO/DAY/YR	TO MO/DAY/YR
R/V Virginian Sea	Ship	R/V Virginian Sea	VIMS	08/30/76	09/10/76

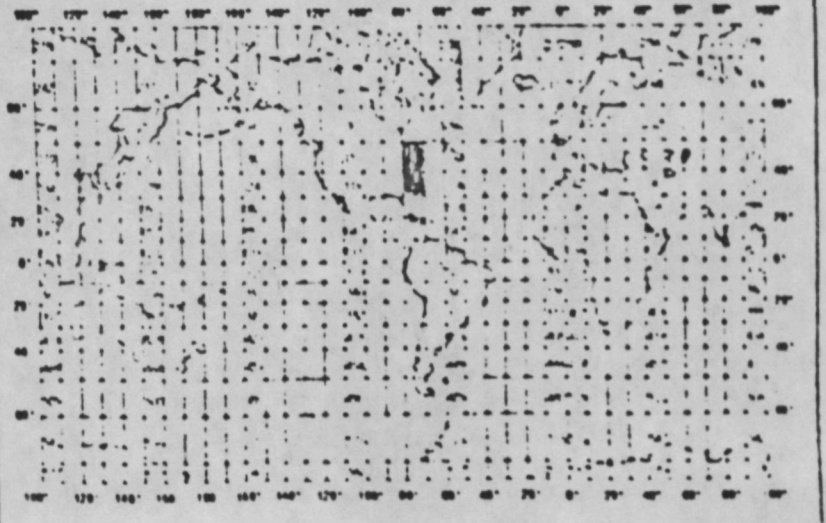
8. ARE DATA PROPRIETARY?

☒ NO ☐ YES

IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR ___ MONTH ___

11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.

GENERAL AREA



9. ARE DATA DESIRED NATIONAL PROGRAM (ENDP)? IF SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNATIONAL EXCHANGE?

☒ NO ☐ YES ☐ PART (SPECIFY BELOW)

10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELEPHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM 1)

Dr. Gerald L. Engel
Virginia Institute of Marine Science
Gloucester Point, Va. 23062
804-642-2111

NOAA FORM 24-13

USCOMM-DC 66280-P72

CRUISE dM 021B

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Latitude & Long.	Degrees, mins., seconds	Loran C SIMRAD Model LC 101		Program used to convert from Loran C coordinats to Latitude & Longitude
Latitudinal Hemis.	N or S			
Longitudinal Hemisphere	E or W			
Station time	GMT to nearest tenth of an hour	Ships chronometer checked w/ WWV		
Water depth	to nearest tenth of a meter	EDR Hydroproducts		
Water sample depth	to nearest meter	Neil Brown Ltd. MK III		
Surface water temperature	°C to nearest tenth	Stem thermometer		
Sediment temperature	°C to nearest tenth	Stem thermometer		
Barometric pressure	millibars, tens to tenths	Ships Barometer		
Dry-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wet-bulb air temperature	°C to nearest tenth	Aspirated Psychrometer Bendix Model 566		
Wind Direction	tens of degrees WMO Code 0877	Ship's anemometer Bendix-Friez Model 120/135		
Wind Speed	Knots	Ship's anemometer Bendix-Friez Model 120/135		
Wave direction	tens of degrees WMO Code 0877	Ship's compass		
Wave height	1/2 meters WMO Code 1555	Visual estimate		
Swell Direction	tens of degrees WMO Code 0877	Ship's Compass		
Swell height	1/2 meters WMO Code 1555	Visual estimate		
Weather	WMO Code 4677	Visual estimate		
Cloud type	WMO Codes 0513, 0515, 0509	Visual estimate		

B. SCIENTIFIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Cloud cover	WMO code 2700	Visual observation		
Visibility	WMO code 4377	Visual observation		
Wave period	seconds	Wrist watch - visual observation		
Swell period	seconds	Wrist watch - visual observation		
Salinity	Parts per thousand to 0.01%	Niskin bottles on Rosette	Inductive Salinometer Beckman R S 7-B	N/A
		Neil Brown CTD model MK III	N/A	Frequencies averaged over 1/2 meter intervals
Dissolved Oxygen	Milligrams per liter	Niskin bottles on Rosette	Azide modification to Winkler Titration	N/A
		Beckman minos D.O. Sensor	N/A	Values averaged over 1/2 meter depth intervals
Water temperature	°C to .01	Neil Brown CTD MK III	N/A	Values averaged over 1 m
	°C to 0.1	XBT	N/A	Depth and temp at local max, min, inflection points
NO_2	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
NO_3	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method #158-71W AAII	N/A
Dissolved organic phosphate	u gm. atoms/ liter	Niskin bottles on Rosette	Technicon industrial method # 155-71W AAII	N/A

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

1. File Header "1" in position 10
2. Sample Header 1 "2" in position 10
3. Terminator for Sample Header 1 positions 1-10 identical to last sample header, "999" in positions 11-13
4. Sample Header 2 "3" in position 10
5. Terminator for Sample Header 2 Positions 1-10 identical to the last sample header "999" in positions 11-13.
6. Data Record "4" in position 10
7. Terminator for data for each sample Positions 1-10 identical to last data record, "999" - position 11-13.
8. File Terminator Positions 1-10 identical to last data record, "999" in positions 11-13.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

First record is File Header. Following this are Sample Header records 1 & 2, each followed by a Terminator record.
Following this are Data Records for that sample followed by Terminator record.
Sample headers, terminators, data records, terminator sequence is repeated until final terminator record.

3. ATTRIBUTES AS EXPRESSED IN [ ] PL-1 [ ] ALGOL [ ] OBOL [X] FORTRAN [ ] _____ [ ] _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:
NAME AND PHONE NUMBER Gerald L. Engel
ADDRESS Gloucester Point Virginia

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE [ ] BCD [ ] BINARY [ ] ASCII [X] EBCDIC

6. NUMBER OF TRACKS (CHANNELS) [ ] SEVEN [X] NINE

7. PARITY [X] ODD [ ] EVEN

8. DENSITY [ ] 200 BPI [X] 1600 BPI [ ] 556 BPI [ ] 800 BPI

9. LENGTH OF RECORD GA... (IF KNOWN) [ ] 3/4 INCH [X] 0.6 inch

10. END OF FI... MARK [ ] OCTAL 17

11. PASTE-ON... OTHER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND VOLUME SERIAL OF DATA TAPE, VOLUME SERIAL...)

VCM280
Va. Inst. of Marine Sc.
Water Physics & Chemistry (014)
BLM04W
File Label: WPHYSICS.76/05/25

12. PHYSICAL BLOCK LENGTH IN BYTES
80

13. LENGTH OF BYTES IN BITS
8

NOAA FORM 24-13

RECORD NAME FILE HEADER

14. FIELD NAME	15. POSITION FROM BEGINNING MEASURED IN BYTES	16. LENGTH NUMBER	UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file type (W. Physics & Chem)
File date	4	6	Bytes	3I2	Year, month, day of file generation
Record type	10	1	Chars	A1	"1" (File Header Record)
Vessel	11	11	Chars	11A1	Vessel name (left-justified)
Cruise	22	6	Chars	6A1	Originator's cruise identify (left-justified)
Cruise Dates	28	17	Bytes	5 (I2, A1) I2	xx/xx/xx-xx/xx/xx Beginning year, month, day-Ending year, month, day
Senior Scientist	45	19	Chars	19A1	(left-justified)
Investigator	64	17	Chars	23A1	Investigators & Institution responsible for data.

		NUMBER	UNITS	(FORTRAN)	
Record Type "2" (Terminator)					
Ident	1	10	Bytes	A3, 3I2, A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Sample Header Record 2					
File Type	1	3	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"3" (second sample header record)
Sequence	11	3	Bytes	I3	Sequence of this record type within sample
Sample	14	5	Chars	5A1	Sample number identifier
Barometer	19	3	Bytes	F3.1*	Pressure in millibars
Dry Bulb	22	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wet Bulb	26	4	Bytes	F4.1*	Air temperature; degrees Celsius
Wind Direction	30	2	Bytes	I2	WMO code 0877; tens of degrees
Wind Speed	32	2	Bytes	I2	Knots
Wave Direction	34	2	Bytes	I2	WMO code 0877; tens of degrees
Wave Height	36	1	Byte	I1	WMO code 1555
Swell Direction	37	2	Bytes	I2	WMO code 0877; tens of degrees
Swell Height	39	1	Byte	I1	WMO code 1555
Weather	40	2	Bytes	I2	WMO code 4677
Cloud type	42	3	Bytes	I3	WMO codes 0513, 0515, 0509
Cloud cover	45	1	Bytes	I1	WMO code 2700; percent of cloud cover
Visibility	46	1	Byte	I1	WMO code 4300
Blank	47	1	Byte	1X	Blank
Turbidity	48	1	Byte	I1	Turbidity measurement technique (see attached codes)
Wave Period	49	2	Bytes	I2	Seconds
Swell Period	51	2	Bytes	I2	Seconds
SEA SFC Temp	53	3	Bytes	F3.1*	Sea surface temperature degrees celsius
Blank	56	25	Bytes	25X	Blank

*Decimal place is IMPLIED: "period" is not present

RECORD FORMAT DESCRIPTION

RECORD NAME SAMPLE HEADER 1

14. FIELD NAME	15. LOCATION FROM-TO MEASURED IN (e.g., Bits, Bytes)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES (FORTRAN)	18. USE AND MEANING
File Type	1	3	Chars	A3	"014" file-type (W. Physics & Chem.)
File Date	4	6	Bytes	3I2	Year, month, day of file generation
Record Type	10	1	Char	A1	"2" (first sample header record)
Sequence	11	3	Chars	A3	Sequence of this record type within sample
Lab Sample No.	14	5	Chars	5A1	Sample identifier
Latitude	19	6	Bytes	3I2	Degrees, minutes, seconds
Lathem	25	1	Char	A1	Hemisphere "N" or "S"
Longitude	26	7	Bytes	I3, 2I2	Degrees, minutes, seconds
Lonhem	33	1	Char	A1	Hemisphere, "E" or "W"
Time	34	3	Bytes	F3.1*	Station time (GMT in hours)
Date	37	8	Bytes	2 (I2, A1) .I2	xx/xx/xx Sample Date (year, month, day)
Depth	45	5	Bytes	.F5.1*	Water depth (meters)
Navigation	50	2	Bytes	.I2	Navigation method 01=Loran (mixed or unspecified 02=Radar and/or fixes 03=Raydist without complications 04=Raydist with errors, drifting etc. 05=Satellite 06=Omega 07 Loran A only 08 Loran C only
Method	52	1	Bytes	I1	Sampling method: 1=CTD 2=XBT 3=Water Bottles 4=CTD & Water Bottles 5=CTD, Water Bottles, & XBT 6=GRAB 7=Meteriological
Blank	53	28	Bytes	28X	Blank

*Decimal place is IMPLIED: "period" is not present.

RECORD FORMAT DESCRIPTION

RECORD NAME

14. FIELD NAME	15. POSITION FROM–TO (IN BYTES)	16. LENGTH NUMBER	16. LENGTH UNITS	17. ATTRIBUTES	18. USE AND MEANING
Record Type "3" Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Sample Header Record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank
Data Record					
File Type	1	3.	Chars	A3	"014" (constant)
File Date	4	6	Bytes	3I2	year, month, day of file generation
Record Type	10	1	Char	A1	"4" (data record)
Sequence	11	3	Bytes	I3	Sequence of rec.type w/in sample
Sample	14	5	Chars	5A1	Sample identifier
Depth	19	4	Bytes	I4	Sample depth (meters)
Pressure	23	5	Bytes	F5.1*	Pressure (decibars)
Conduct	28	5	Bytes	F5.3*	Conductivity (mmho/cm)
Temp.	33	5	Bytes	F5.3*	Water temperature (°C)
Salin	38	4	Bytes	F4.2*	Salinity (PPT)
D.O.	42	4	Bytes	F4.2*	Dissolved Oxygen (MG/L)
NO_2	46	4	Bytes	F4.2*	Nitrite (microgram - atom/L)
NO_3	50	4	Bytes	F4.2*	Nitrate (microgram - atom/L)
NH_4	54	4	Bytes	F4.3*	Ammonia (ppm)
$O-PO_4$	58	4	Bytes	F4.2*	Ortho-Phosphate(Microgram-atom/L)
DOC	62	4	Bytes	F4.2*	Dissolved organic carbon(mg/L)
POC	66	4	Bytes	F4.2*	Particulate organic carbon(mg/L)
CSALIN	70	5	Bytes	F5.3*	Calculated salinity (ppt to nearest 0.005)
C.D.O.	75	4	Bytes	F4.2*	Calculated Dissolved oxygen (mg/L)
Blank	79	2	Bytes	2X	Blank
Data Record Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as Data Record
Sequence	11	3	Chars	A3	"998" (constant)
Blank	14	67	Bytes	67X	Blank
File Terminator					
Ident	1	10	Bytes	A3,3I2,A1	Same as data record
Sequence	11	3	Chars	A3	"999" (constant)
Blank	14	67	Bytes	67X	Blank

*Decimal place is IMPLIED: "period" is not present.

Navigation:

01 = Loran (mixed or unspecified)
02 = Radar and/or fixes
03 = Raydist without complications
04 = Raydist with errors, drifting, etc.
05 = Satellite
06 = Omega
07 = Loran A only
08 = Loran C only

Turbidity Measurement Technique

1 = Turbidometer; in JTU
2 = Transmissometer; in percent of light transmission over a 10 cm. path
3 = Flourometer; suspended solids calibration
4 = Nephelometer

D. INSTRUMENT CALIBRATION

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the BDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

INSTRUMENT TYPE (MFR., MODEL NO.)	DATE OF LAST CALIBRATION	INSTRUMENT WAS CALIBRATED BY		CHECK ONE: INSTRUMENT IS CALIBRATED					INSTRUMENT IS NOT CALIBRATED
		YOUR ORGANIZATION (✓)	OTHER ORGANIZATION (GIVE NAME)	AT FIXED INTERVALS (✓)	BEFORE OR AFTER USE (✓)	BEFORE AND AFTER USE (✓)	ONLY AFTER REPAIR (✓)	ONLY WHEN NEW (✓)	(✓)
Neil Brown Inst. CTD MK III	July, 1976	✓			✓				
Beckman Minds D. O. Sensor	July, 1976	✓			✓				
Beckman Inductive Salinometer RS 7B	Dec. 1975	✓		* ✓ Annually					

NOAA FORM [illegible] [illegible]

*Calibrated Annually Checked with Copenhagen water After 200 Samples

```
Password:
 accNo   fleA refNo  proj inst ship    startDate  cruise   catId
 ------- ---- ------ ---- ---- ------- ---------- -------- ----------
 7700477 F004 TR1512 0084 3128 31GI    1976/06/14 BLM03B       304177
 7700477 F004 TR1513 0084 3128 31PP    1976/08/14 BLM04B       304178
 7700477 F004 TR1514 0084 3128 32IT    1976/09/12 BLM04G       304179
 7700477 F004 TR1515 0084 3128 32CW    1976/08/23 BLM04T       304180
 7700477 F004 TR1516 0084 3128 31PP    1976/02/04 BLM02W       304181
 7700477 F004 TR1517 0084 3128 32VS    1976/06/07 BLM03W       304182
 7700477 F004 TR1518 0084 3128 32VS    1976/08/30 BLM04W       304183

(7 rows affected)
```

```
Password:
 accNo   fleA refNo  ship staCnt recCnt startDate  endDate
 ------- ---- ------ ---- ------ ------ ---------- ----------
 7700477 F004 TR1512 31GI 66     0      76/06/14   76/06/24
 7700477 F004 TR1513 31PP 111    0      76/08/14   76/09/02
 7700477 F004 TR1514 32IT 26     0      76/09/12   76/09/14
 7700477 F004 TR1515 32CW 10     0      76/08/23   76/08/27
 7700477 F004 TR1516 31PP 105    0      76/02/04   76/02/17
 7700477 F004 TR1517 32VS 30     0      76/06/07   76/06/17
 7700477 F004 TR1518 32VS 25     0      76/08/30   76/09/10

(7 rows affected)
```