

ACCESSION  
NUMBER

76-1930

DDF A:3:01

## DATA DOCUMENTATION FORM

TR 0643

NOAA FORM 24-13  
(4-72)U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEANOGRAPHIC DATA CENTER  
RECORDS SECTION  
ROCKVILLE, MARYLAND 20852FORM APPROVED  
O.M.B. NO. 1

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

Joel Cline  
Pacific Marine Environmental Laboratory/ERL/NOAA  
3711 - 15th Avenue NE  
Seattle, WA 98115

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

OCSEAP (Bureau of Land Management)  
Research Unit 153/155

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

760719

4. PLATFORM NAME(S)

DISCOVERER  
RP-4-DI-76B-I

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

Ship

6. PLATFORM AND OPERATOR NATIONALITY(IES)

PLATFORM OPERATOR FROM TO

USA

USA

7/19/76

7/31/76

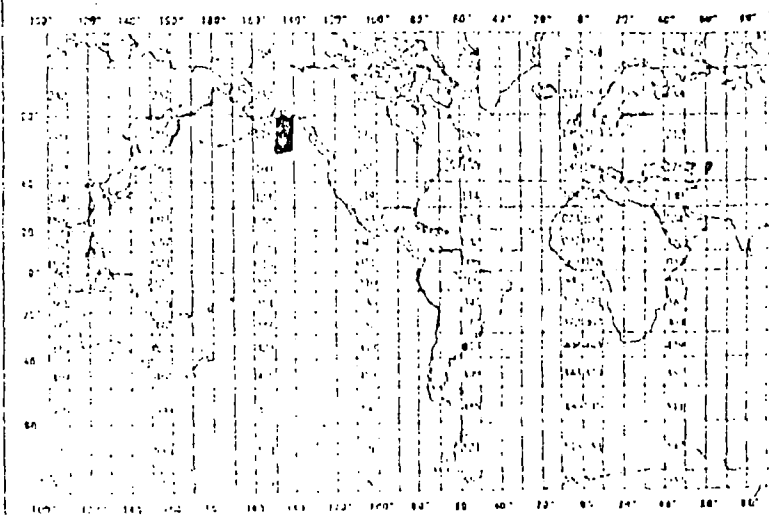
8. ARE DATA PROPRIETARY?

☒ NO ☒ YESIF YES, WHEN CAN THEY BE RELEASED  
FOR GENERAL USE? YEAR 77 MONTH 079. ARE DATA DECLARED NATIONAL  
PROGRAM (DNPI)?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. Joel Cline  
PMEL/ERL/NOAA  
442-4900 (commercial)  
399-4900 (FTS)

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

Northeast Gulf of Alaska  
GENERAL AREA



# 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
low molecular weight hydrocarbons: ethane, ethane, toluene, propane, isopentane, n-pentane, ethane, toluene and isopentane + propylene	nanoliter per liter (STP) ml/l	Samples were taken from standard 5 and 10-1 Niskin(R) samplers vertically placed with a Rosette sampler	See attached sheet	See attached sheet

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

```
Record Type 0 - 0 in Col 10
Record Type 1 - 1 in Col 10
Record Type 5 - 5 in Col 10
Record Type 6 - 6 in Col 10
```

File is composed of data from 1 cruise.  
Record type 0 is a cruise header card; record type 1 is a station description (i.e., latitude - longitude, etc.) card; record type 5 is a data listing card; record type 6 is a continuation of record type 5.

<input type="checkbox"/> PL-1	<input type="checkbox"/> ALGOL	<input type="checkbox"/> COROL
<input checked="" type="checkbox"/> FORTRAN		LANGUAGE

NAME AND PHONE NUMBER: Dr. Joel Cline (FTS 399-4900; (206) 442-4900)  
ADDRESS: PMEL, 3711 15th Ave NE, Seattle, WA 98105

5. RECORDING MODE	<input type="checkbox"/> BCD	<input type="checkbox"/> BINARY
	<input type="checkbox"/> ASCII	<input checked="" type="checkbox"/> EBCDIC
	<input type="checkbox"/>	
6. NUMBER OF TRACKS (CHANNELS)	<input type="checkbox"/> SEVEN	
	<input checked="" type="checkbox"/> NINE	
	<input type="checkbox"/>	
7. PARITY	<input type="checkbox"/> ODD	
	<input checked="" type="checkbox"/> EVEN	
8. DENSITY	<input type="checkbox"/> 256 BPI	<input checked="" type="checkbox"/> 1600 BPI
	<input type="checkbox"/> 556 BPI	
	<input type="checkbox"/> 800 BPI	
	<input type="checkbox"/>	

10. END OF FILE MARK OCTAL 17

Data submitted to NODC on punched cards.

IN PERSONALITY FROM 1908 TO 1967

13. CONTENT OF SYLLABUS IN BOOKS

# RECORD FORMAT DESCRIPTION

RECORD NAME Hydrocarbon I Header Record -Record Type 0

14. NAME	15. POSITION FROM - 1 MEASURED IN Bytes (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	A3	Always '043'
File Identifier	4	6	Bytes	I6	'YYMMDD' or unique cruise number
Record Type	10	1	Bytes	I1	Always '0'
Vessel	11	11	Bytes	A11	Left justified
Cruise Number	22	6	Bytes	A6	
Inclusive Cruise Dates	28	17	Bytes	A17	'YY/MM/DD-YY/MM/DD'
Senior Scientist	45	19	Bytes	A19	Left justified
Investigator or Institution	64	17	Bytes	A17	Left justified

# RECORD FORMAT DESCRIPTION

RECORD NAME Hydrocarbon I Station Header-Record Type 1

16. NAME	15. POSITION FROM - 1 MEASURED IN Bytes (0-2, bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	A3	Always '043'
File Identifier	4	6	Bytes	I6	'YYMMDD' or unique cruise number
Record Type	10	1	Bytes	I1	Always '1'
Station Number	11	5	Bytes	A5	
Sequence Number	16	2	Bytes	I2	
Latitude,					
Degrees	18	2	Bytes	I2	
Minutes	20	4	Bytes	I4	To hundredths
Hemisphere	24	1	Bytes	A1	'N' or 'S'
Longitude,					
Degrees	25	3	Bytes	I3	
Minutes	28	4	Bytes	I4	To hundredths
Hemisphere	32	1	Bytes	A1	'E' or 'W'
Year	33	2	Bytes	I2	} G.M.T.
Month	35	2	Bytes	I2	
Day	37	2	Bytes	I2	
Hour	39	2	Bytes	I2	
Minute	41	2	Bytes	I2	
Depth to Bottom	43	5	Bytes	I5	Whole meters
Gear Code	48	2	Bytes	A2	
Analysis Code	50	2	Bytes	A2	
Sample Type	52	2	Bytes	A2	'01' vertical profile '02' replicate study '03' time series
	54	27	Bytes	27X	

# RECORD NAME DESCRIPTION

RECORD NAME Hydrocarbon I

Data I-Record Type 5

FIELD NAME	POSITION FROM-1 MEASURED IN Bytes	LENGTH		DATA TYPE	VALUE AND MEANING
		NUMBER	UNIT		
File Type	1	3	Bytes	A3	Always '043'
File Identifier	4	6	Bytes	I6	'YYMMDD' or unique cruise number
Record Type	10	1	Bytes	I1	Always '5'
Station Number	11	5	Bytes	A5	
Sequence Number	16	2	Bytes	I2	
Sample Depth	18	4	Bytes	I4	Whole meters
Total Volume of Sample	22	5	Bytes	I5	Liters to hundredths
Total Dissolved Hydrocarbons	27	3	Bytes	I3	XXX. nanoliter/liter
Sign	30	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	31	1	Bytes	I1	1-9
Methane	32	4	Bytes	I4	XXXX. nanoliter/liter
Sign	36	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	37	1	Bytes	I1	1-9
Trace	38	1	Bytes	A1	*
Ethane	39	4	Bytes	I4	XXXX. nl/l
Sign	43	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	44	1	Bytes	I1	1-9
Trace	45	1	Bytes	A1	*
Ethylene	46	4	Bytes	I4	XXXX. nl/l
Sign	50	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	51	1	Bytes	I1	1-9
Trace	52	1	Bytes	A1	*

# RECORD FORMAT DESCRIPTION

RECORD NAME Hydrocarbon I Data I (Cont'd)-Record Type 5

FIELD NAME	POSITION FROM 1 MEASURED IN Bytes (e.g., bits, bytes)	LENGTH		DATA REPRESENTATION	USE AND MEANING
		NUMBER	UNITS		
Propane	53	4	Bytes	I4	XXXX. nl/1
Sign	57	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	58	1	Bytes	I1	1-9
Trace	59	1	Bytes	A1	*
Propylene	60	4	Bytes	I4	XXXX. nl/1
Sign	64	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	65	1	Bytes	I1	1-9
Trace	66	1	Bytes	A1	*
Iso-Butane	67	4	Bytes	I4	XXXX. nl/1
Sign	71	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	72	1	Bytes	I1	1-9
Trace	73	1	Bytes	A1	*
N-Butane	74	4	Bytes	I4	XXXX. nl/1
Sign	78	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	79	1	Bytes	I1	1-9
Trace	80	1	Bytes	A1	*
					* Trace Coding ' ' = no information '1' = Trace found - too small to measure '2' = no measurement due to instrumentation limits XXX. and XXXX. indicates the IMPLIED decimal place

# RECORD FORMAT DESCRIPTION

RECORD NAME Hydrocarbon I Data II-Record Type 6

FIELD NAME	IS POSITION FROM-1 MEASURED IN Bytes	RECORD LENGTH		DATA TYPE	REMARKS AND MEANING
		NUMBER	UNIT		
File Type	1	3	Bytes	A3	Always '043'
File Identifier	4	6	Bytes	I6	'YYMMDD' or unique cruise number
Record Type	10	1	Bytes	I1	Always '6'
Station Number	11	5	Bytes	A5	
Sequence Number	16	2	Bytes	I2	
Sample Depth	18	4	Bytes	I4	In meters
Total Volume of Sample	22	5	Bytes	I5	In liters to hundredths
Total Dissolved Hydrocarbons	27	3	Bytes	I3	XXX. nl/l
Sign	30	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	31	1	Bytes	I1	1-9
Ethane + Ethylene	32	4	Bytes	I4	XXXX. nl/l
Sign	36	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	37	1	Bytes	I1	1-9
Trace	38	1	Bytes	I1	*
Propane + Propylene	39	4	Bytes	I4	XXXX. nl/l
Sign	43	1	Bytes	A1	Positive = '+' or ' ' Negative = '-'
Exponent	44	1	Bytes	I1	1-9
Trace	45	1	Bytes	I1	*
Blank	46	35	Bytes	35X	

XXX. and XXXX. indicates the IMPLIED decimal place

\* Trace Coding

' ' = no information

'1' = trace found - too small to measure

'2' = no measurement due to instrumentation limits



### Analytical Methods and Laboratory Procedures

The low molecular weight hydrocarbons ( $C_1$ - $C_4$ ) were stripped from solution with ultrapure helium and condensed on activated alumina (60-80 mesh) at  $-296^{\circ}\text{C}$ . Subsequent to quantitative removal of all the gases, the activated alumina trap was warmed ( $100^{\circ}\text{C}$ ) and the components chromatographed on Poropak(R) Q (8' x 3/16"), 60-80 mesh. Analysis was carried out in a Hewlett-Packard(R) model 5711 GC with a flame ionization detector. Peak responses and areas were recorded on a Hewlett-Packard model(R) 3380 reporting integrator. Details of the procedure may be found in: Swinnerton, J.W. and R.A. Lamontagne. 1974. Oceanic distribution of low molecular weight hydrocarbons. Baseline measurements. Environ. Sci. Technol., 8: 657-663.

## Data Processing Techniques with Filtering and Averaging

The concentration of each component was calculated from the corrected peak areas and compared to specially prepared Matheson Gas Products<sup>(R)</sup> certified hydrocarbon mixtures. Each analysis represents a single measurement, except in the case where replicate analyses were performed.

### Accuracy

The accuracy of the standards is quoted by Matheson to be  $\pm 5\%$  ( $1\sigma$ ) for each component.

### Precision

The precision ( $\sigma$  total) of the method including sampling and GC analysis, based on replicate sample analysis, is estimated to be:

	$\sigma$ Total	$\sigma$ Std
methane	2%	0.4%
ethane	4%	0.5%
ethylene	5%	1.5%
propane	26%	0.6%
propylene	26%	2.6%
iso-butane	NA	NA
n-butane	NA	NA

The second column above reflects the precision error ( $\sigma$  std) determined from replicate injections of hydrocarbon standards in the ppm range.

### Detection Limit

The detection limit is defined to be the concentration equal to twice the nominal noise level. By applying this definition to actual field operational conditions, we estimate the following detection limits: methane 0.13 nl/l; ethane 0.05 nl/l; ethylene 0.07 nl/l; propane 0.04; propylene 0.05 and butanes (n-, iso-) at 0.03 nl/l.

### Trace Concentration

A trace concentration is recorded whenever the slope criteria of the peak was not exceeded, resulting in no valid peak integration. In all cases, a trace concentration is greater than the detection limit. To flag this situation, a numeric "1" is recorded in the last column of the individual component field (see record type 5 and 6).

### Incomplete Component Separation and Invalid Analysis

In some cases, incomplete chromatography of ethane-ethylene and propane-propylene components resulted in merged peaks that were not sufficiently resolved to obtain a reliable integration. Because the response factor for components with the same carbon number are nearly the same, a single response could be recorded for the sums of the aliphatics and olefins. These results are recorded on record type 6 as ethane+ethylene, propane+propylene.

Invalid analyses are indicated by blank spaces in the individual component field in record type 5 and 6.

Password:

accNo	fleA	refNo	proj	inst	ship	startDate	cruise	catId
-----	----	-----	-----	-----	-----	-----	-----	-----
7601930	F144	TR0643	0081	313F	31DS	1976/07/21	RP4DI76B	301536

(1 row affected)

Password:

accNo	fileA	refNo	ship	staCnt	recCnt	startDate	endDate
-----	----	-----	-----	-----	-----	-----	-----
7601930	F144	TR0643	31DS	269	1329	76/07/21	76/07/30

(1 row affected)