

DATA DOCUMENTATION FORM

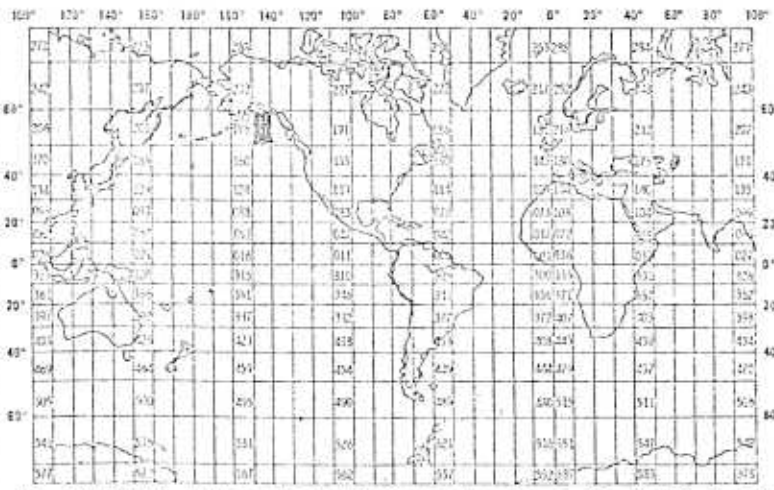
TR0095

FORM APPROVED
O.M.B. No. 41-K2651

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 Pacific Marine Environmental Laboratory/ERL/NOAA 3711 - 15th Avenue N.E. Seattle, Washington 98105											
2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED OCSEAP (Bureau of Land Management)		3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT RP-4-DI-75C-I									
4. PLATFORM NAME(S) DISCOVERER	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.) Ship	6. PLATFORM AND OPERATOR NATIONALITY(IES) <table border="1"><thead><tr><th>PLATFORM</th><th>OPERATOR</th></tr></thead><tbody><tr><td>USA</td><td>USA</td></tr></tbody></table>	PLATFORM	OPERATOR	USA	USA	7. DATES <table border="1"><thead><tr><th>FROM: MO/DAY/YR</th><th>TO: MO/DAY/YR</th></tr></thead><tbody><tr><td>10/21/75</td><td>11/09/75</td></tr></tbody></table>	FROM: MO/DAY/YR	TO: MO/DAY/YR	10/21/75	11/09/75
PLATFORM	OPERATOR										
USA	USA										
FROM: MO/DAY/YR	TO: MO/DAY/YR										
10/21/75	11/09/75										
8. ARE DATA PROPRIETARY? <input checked="" type="checkbox"/> NO <input type="checkbox"/> 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 PROGRAM (DNP)? (I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNA- TIONAL EXCHANGE?) <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> YES <input type="checkbox"/> PART (SPECIFY BELOW)											
10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELE- PHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM-1) Dr. Joel Cline PMEL/ERL/NOAA 206-442-0837 (commercial) 399-0837 (FTS) 8-399-4900 (Lab)											

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: (C ₁ -C ₄) methane, ethane, ethylene, propane, propylene, n-butane, isobutane, ethane + ethylene and propane + propylene	nanmoliter per liter (STP) nl/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

C. DATA FORMAT

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

Hydrocarbon I

Four distinct record types: Header (0), Station Header (1), Data I (5),
and Data II (6), differentiated by byte 10.

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

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

4. RESPONSIBLE COMPUTER SPECIALIST:

NAME AND PHONE NUMBER David GintzADDRESS Data Systems Formulation and Integration Branch, NODC

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

<p>5. RECORDING MODE</p> <p><input type="checkbox"/> BCD <input type="checkbox"/> BINARY</p> <p><input type="checkbox"/> ASCII <input checked="" type="checkbox"/> EBCDIC</p> <p><input type="checkbox"/> _____</p>	<p>9. LENGTH OF INTER-RECORD GAP (IF KNOWN) <input checked="" type="checkbox"/> 3/4 INCH</p> <p><input type="checkbox"/> _____</p>
<p>6. NUMBER OF TRACKS (CHANNELS)</p> <p><input type="checkbox"/> SEVEN</p> <p><input checked="" type="checkbox"/> NINE</p> <p><input type="checkbox"/> _____</p>	<p>10. END OF FILE MARK <input checked="" type="checkbox"/> OCTAL 17</p> <p><input type="checkbox"/> _____</p>
<p>7. PARITY</p> <p><input checked="" type="checkbox"/> ODD</p> <p><input type="checkbox"/> EVEN</p>	<p>11. PASTE-ON-PAPER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND SOME KEY SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER)</p> <p>User tape: Volume = 004234</p> <p>DCB = RECFM=FB,LRECL=80,BLKSIZE=6400</p> <p>Label = (7,NL)</p>
<p>8. DENSITY</p> <p><input type="checkbox"/> 200 BPI <input checked="" type="checkbox"/> 1600 BPI</p> <p><input type="checkbox"/> 556 BPI</p> <p><input type="checkbox"/> 800 BPI</p> <p><input type="checkbox"/> _____</p>	<p>12. PHYSICAL BLOCK LENGTH IN BYTES</p> <p>6400</p> <p>13. LENGTH OF BYTES IN BITS</p> <p>8</p>

C. DATA FORMAT

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

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

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

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.

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

4. RESPONSIBLE COMPUTER SPECIALIST:

NAME AND PHONE NUMBER Mr. Lee Ohler [FTS 399-1971; Comm] (206) 442-1971]

ADDRESS PMEL, 3711 15th Ave NE, Seattle, WA 98105

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

<p>5. RECORDING MODE</p> <p><input type="checkbox"/> BCD <input type="checkbox"/> BINARY</p> <p><input type="checkbox"/> ASCII <input type="checkbox"/> EBCDIC</p> <p><input type="checkbox"/> _____</p>	<p>9. LENGTH OF INTER-RECORD GAP (IF KNOWN) <input type="checkbox"/> 3/4 INCH</p> <p><input type="checkbox"/> _____</p>
<p>6. NUMBER OF TRACKS (CHANNELS)</p> <p><input type="checkbox"/> SEVEN</p> <p><input type="checkbox"/> NINE</p> <p><input type="checkbox"/> _____</p>	<p>10. END OF FILE MARK</p> <p><input type="checkbox"/> OCTAL 17</p> <p><input type="checkbox"/> _____</p>
<p>7. PARITY</p> <p><input type="checkbox"/> ODD</p> <p><input type="checkbox"/> EVEN</p>	<p>11. PASTE-ON-PAPER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND SOME LAY SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER)</p>
<p>8. DENSITY</p> <p><input type="checkbox"/> 200 BPI <input type="checkbox"/> 1600 BPI</p> <p><input type="checkbox"/> 556 BPI</p> <p><input type="checkbox"/> 800 BPI</p> <p><input type="checkbox"/> _____</p>	
<p>12. PHYSICAL BLOCK LENGTH IN BYTES</p>	
<p>13. LENGTH OF BYTES IN BITS</p>	

RECORD FORMAT DESCRIPTION

RECORD NAME Record Type 0, Cruise Header

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN <u>bytes</u> (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	I3	File type 043
File Creation Date	4	6	"	I6	7509 12 75 10 21
Record Type	10	1	"	I1	"0"
Vessel-Cruise	11	17	"	A17	Vessel and cruise number
Cruise Dates	28	17	"	A17	Beginning and ending date of cruise
Senior Scientist	45	19	"	A19	Senior Scientist on cruise
Investigator and Institution	64	17	A	A17	Principal Investigator and his Institution

RECORD FORMAT DESCRIPTION

RECORD NAME Record Type 1, Station Record

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN <u>Bytes</u> (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	I3	File type 043 75 10 21
File Creation Date	4	6	"	I6	7509 12 (initial cruise date)
Record Type	10	1	"	I1	"1"
Station No.	11	5	"	A5	Arbitrary station designation
Sequence No.	16	2	"	I2	"1", sequential designation of data record for a single station or replicate sequence
Latitude	18	7	"	A7	(cont.) Station position in degrees, minutes, and <u>hundredths</u>
Longitude	25	8 8	"	A7	
Date	32 33	6	"	I6	Date of bottle cast
Time	38 39	4	"	I4	Time of bottle cast (GMT)
Depth to bottom (meters)	42 43	5	"	I5	Bottom depth at station
Gear Code	47 48	2	"	I2	"11"; water samples taken with standard bottles (i.e., Niskin ^(R) samplers)
Analysis Code	49 50	2	"	I2	"11"; method of analysis
Sample Type	51 52	2	"	I2	"01"; vertical profile "02"; replicate studies "03"; time series

RECORD FORMAT DESCRIPTION

RECORD NAME Record Type 5, Data Record

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN <u>Bytes</u> (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	I3	File type 043
File Creation Date	4	6	"	I6	⁷⁵¹⁰²¹ "7509-12" (initial cruise date)
Record Type	10	1	"	I1	"5"
Station No.	11	5	"	A5	Arbitrary station designation
Sequence No.	16	2	"	I2	"02"; sequential designation of data record for a single station or replicate sequence
Sample Depth	18	4	"	I4	Depth of sample in meters
Total Volume of Sample	22	5	"	I4	Sample volume to .01 liters
Total Dissolved Hydrocarbons	27	5	"	I5	Sum of the components listed below in N1/1 (STP). Last two columns indicate sign (+ or -) and numerical value of exponent (1-9)
Methane	32	7	"	I7	Concentration in N1/1 (STP) Columns 5 and 6 of the field indicate the algebraic sign and numerical value of the exponent; column 7 of the field records "1" for a trace
Ethane	39	7	"	I7	"
Ethylene	46	7	"	I7	"
Propane	53	7	"	I7	"
Propylene	60	7	"	I7	"
iso-butane	67	7	"	I7	"
n-butane	74	7	"	I7	"

RECORD FORMAT DESCRIPTION

RECORD NAME Record Type 6, Data Record

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN <u>Bytes</u> <small>(e.g., bits, bytes)</small>	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
File Type	1	3	Bytes	I3	File type 043
File Creation Date	4	6	"	I6	⁷⁵¹⁰²¹ 750192 (initial cruise date)
Record Type	10	1	"	I1	"6"
Station No.	11	5	"	A5	Arbitrary station designation
Sequence No.	16	2	"	I2	"03"); sequential designation of data record for a single station or replicate sequence
Sample Depth	18	4	"	I4	Depth of sample in meters
Total Volume of Sample	22	5	"	I5	Sample volume to 0.01 liters
Total Dissolved Hydrocarbons	27	5	"	I5	See record type 5
Ethane + Ethylene	32	7	"	I7	Sum of the concentrations of the components in nl/l (STP). See methane record type 5 for field definitions
Propane + Propylene	39	11	"	I7	"

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 -196°C . Subsequent to quantitative removal of all the gases, the activated alumina trap was warmed (100°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(R) 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 $\pm 5\%$ (1σ) for each component.

Precision

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

	σ Total	σ Std
methane	5%	0.5%
ethane	5%	0.6%
ethylene	5%	0.5%
propane	14%	1.2%
propylene	40%	1.2%
iso-butane	40%	0.8%
n-butane	NA	0.8%

The large relative error observed in some components is due to the extremely low concentrations observed in the Bering Sea. The second column above reflects the precision error (σ 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; 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 and propane + propylene.

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