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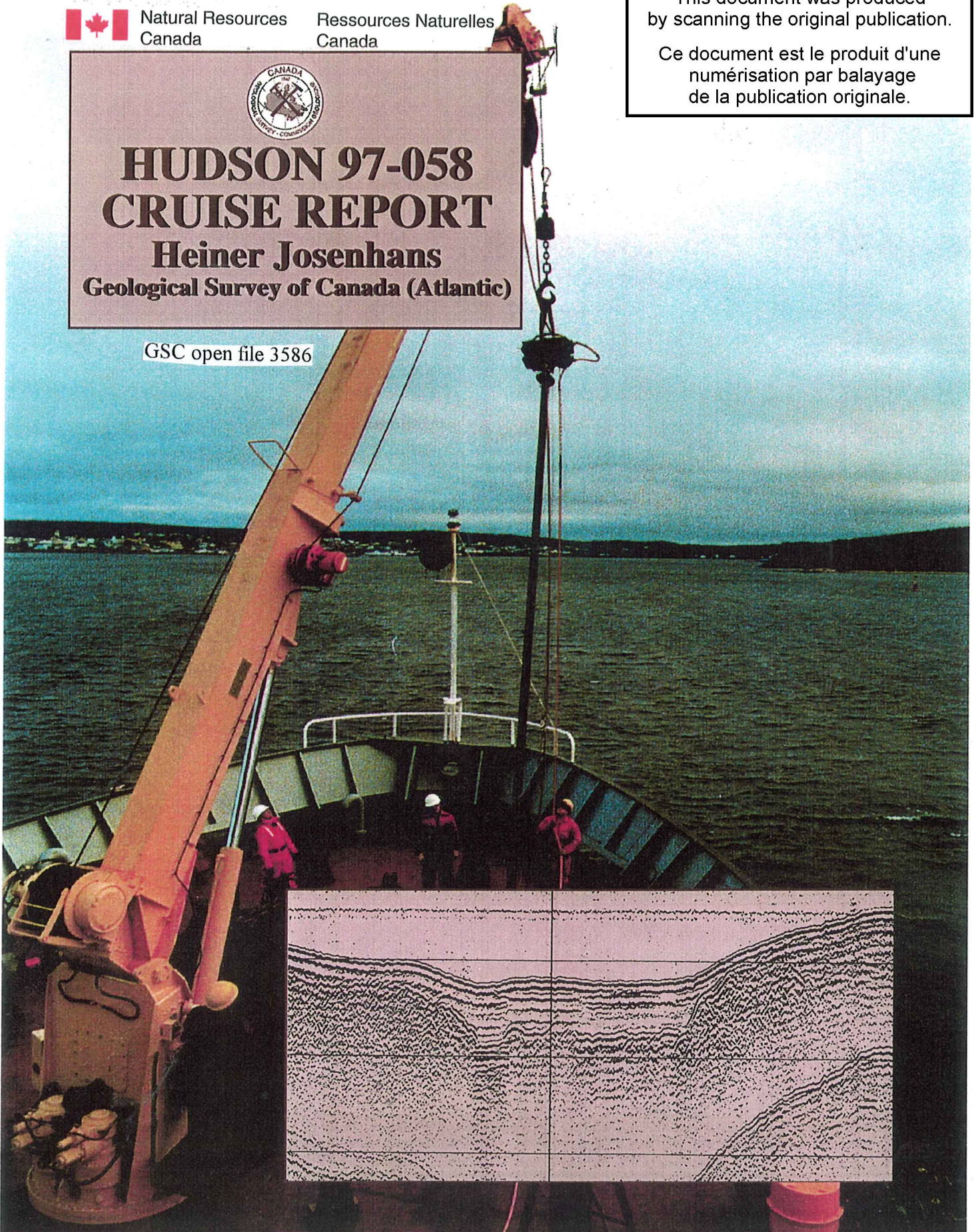
# HUDSON 97-058 CRUISE REPORT

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Geological Survey of Canada (Atlantic)

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HUDSON 97-058  
CRUISE REPORT  
BY Heiner Josenhans

## CRUISE REPORT

CSS HUDSON VOYAGE #: 97-058

### SCIENTIFIC OBJECTIVES

The primary objective of this survey was to define the maximum low stand of post glacial sea-level and to map the surficial seabed geology in site specific areas around Cape Breton Island and within the southern Gulf of St. Lawrence. We planned to seismically survey in search of enclosed basins in order to identify core sites which could be used to define the existence and age of drowned lakes.

### VOYAGE PROCEDURES

Geophysical surveys were run at night and samples were collected during the day. Overtime restrictions limited the deck work to 8 hours per day. All cores were split, photographed, visually described for lithology and colour and subsampled for subsequent foram and diatom analysis. Shells and one wood fragment were extracted for C-14 dating.

### SCIENTIFIC HIGHLIGHTS:

Diagnostic sites to define paleo sea-level were cored in Louisburg Harbour with a sill depth 23m and in St Georges Bay N.S. at a depth of 40m. On-board diatom analysis identified the transition from freshwater to marine deposits. Shell fragments were subsampled from the transitional interval and will be C-14 dated to establish the age of marine inundation. Numerous other "Isolation basins" were identified from seismic reflection profiles and cored but preliminary diatom analysis did not locate fresh or brackish water horizons. This may be due to erosion of the deposits by active present-day bottom-currents or the intervals may have been missed by the preliminary core analysis. More detailed analysis will be performed on the subsamples which were taken as part of the shipboard core splitting, description and subsampling. The high resolution seismic data defined a very thick and complex glacial and post glacial stratigraphic sequence. This deposit is truncated at the seabed by a regionally extensive and flat unconformity. Subsurface unconformities were recognized and may relate to low sea-level events. This unconformity will need to be carefully traced, but shipboard interpretation suggests it may extend to a depth of 100m. The combination of previously collected multibeam bathymetry and subbottom profiles obtained on this cruise indicate that 200-500m

wide depressions are presently being eroded into the proglacial outwash sediments which comprise the sea-floor seaward off Cheticamp in 50m water depth. Northeast and down current from this area of erosion, we samples large coarse sand wave fields which may represent the coarse residual of this modern erosional process. Areas of non deposition/erosion were also observed within the isolated deeps off Pictou island were the deepest parts (68m) were devoid of modern sediments. The western portion of the seabed depression did appear to trap some sediments and indicate sediment movement in a westerly direction. Bedforms such as comet marks were observed on the sidescan images and interpreted to indicate a net transport of bottom sediment by the dominant regional currents which flow around the Magdalen Plateau in a counter clockwise direction. Fishing trawl marks were frequently observed on the seabed throughout the survey, even in areas of very dynamic bedforms.



#### VOYAGE ITINERARY :

Departed Halifax Oct. 10 am en route to Louisburg Cape Breton. Obtained cores in Louisburg harbour and seismics and samples seaward of Louisburg harbour in Gabarus Bay and Approaches. Departed Louisburg area 1300 Oct. 17 and steamed to Cheticamp Cape Breton. Obtained seismic, sidescan and bottom samples nearshore Cheticamp and in the vicinity of southern Gulf of St. Lawrence. Oct. 21. Proceeded to Northumberland Strait to obtain cores at the "Flink" crossing. Oct. 22 obtained vibracore samples in St Georges Bay and off Mabou Cape Breton. Ended survey with bottom photograph transect off Mabou 1500 Oct. 22/97 and returned to Halifax via Canso Causeway. Arrived BIO 0800, Oct. 23/97

#### SCIENTIFIC STAFF LIST AND DUTIES

Heiner Josenhans	chief scientist
Reinhard Pienitz	visiting scientist, Laval University
Ken Asprey	second scientist
Fred Jodrey	sample technician
Paul Girourd	navigation/data tech
Bruce Wile	seismic technician
Martin Uyesugi	Huntec DTS technician
Candace Caines	Seismic watchkeeper
Stephane Campeau	visiting scientist, Laval University
Sebastien Labrecque	student, Laval University
Pierre Zimmerman	student, Laval University
Tanya Rixacker	student, Laval University
Emilie Saulnier- Talbot	student, Laval University
Yan Kestens	student, Laval University

#### ACKNOWLEDGMENTS

I thank the following technical staff for an excellent job at sea: Ken Asprey, Candace Caines, Paul Girourd, Martin Uyesugi and Bruce Wile. I also thank the scientific team from the Universite du Laval for their voluntary and dedicated work on splitting and describing cores and maintaining seismic watches. The officers and crew of Hudson also warrant credit for their professionalism at sea.

## EQUIPMENT USED

- 1) AGCnav package with display package for existing seismic/ sample data
- 2) AGC DIGS system for data logging and display

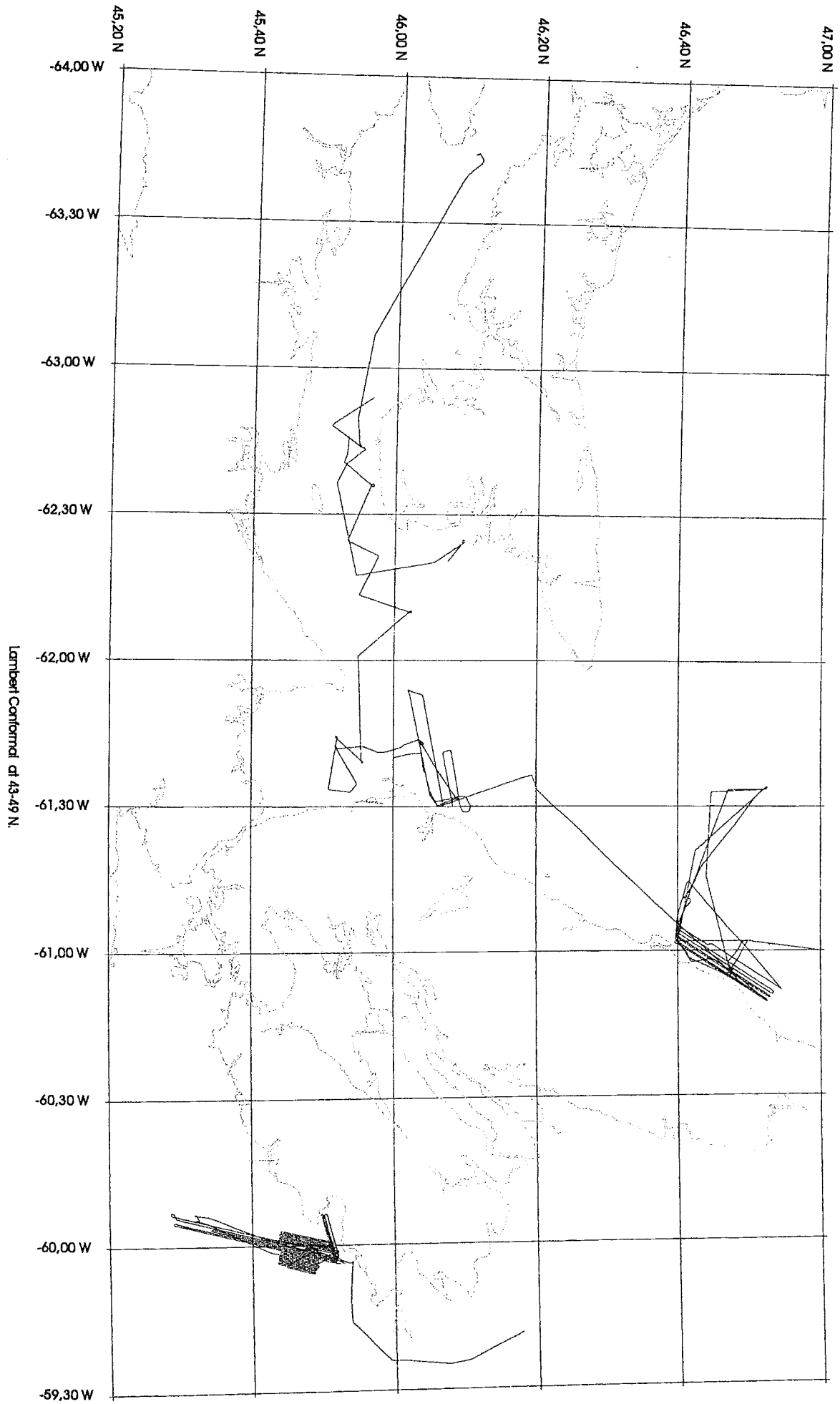
## SEISMIC SYSTEMS

- 1) Hunttec DTS system
- 2) 10 cubic inch sleeve gun system with NSRF and 100' SE eels.
- 3) Klein 595 sidescan sonar system
- 4) Ship mounted 3.5kHz subbottom profiler

## SAMPLING

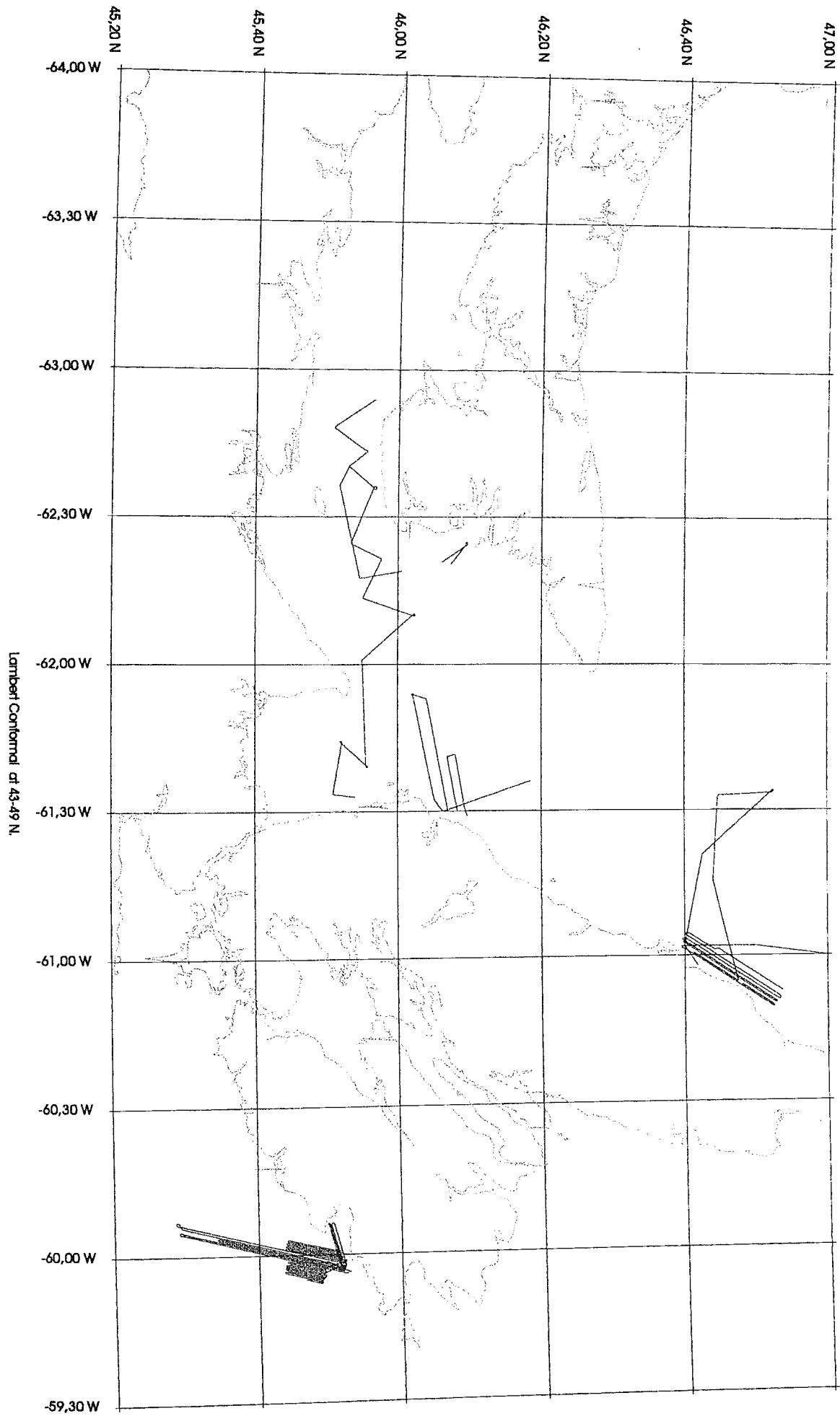
- 1) IKU grab
- 2) Dalhousie vibracore system with 20' barrel length
- 4) AGC piston corer
- 5) underwater camera

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Total Track

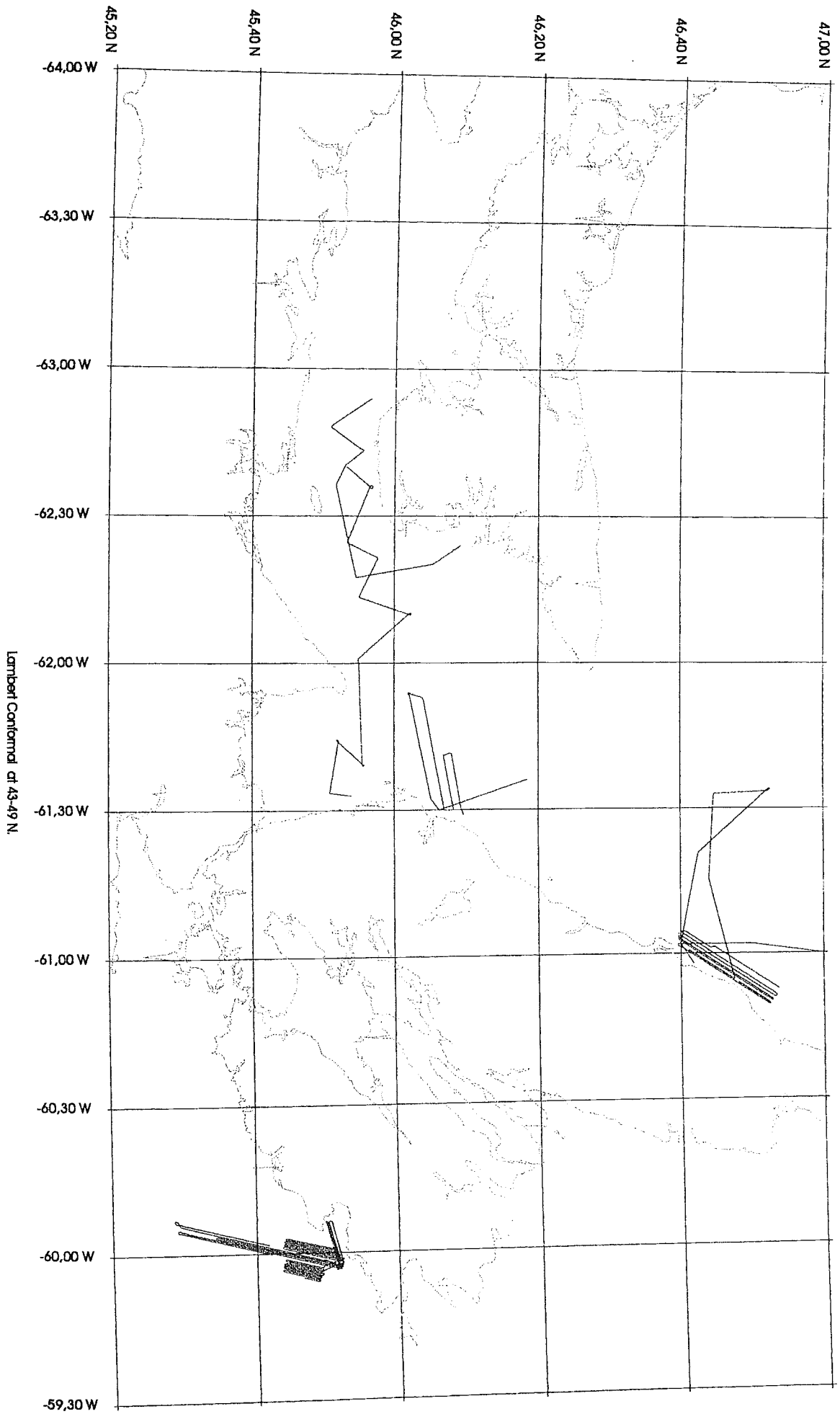




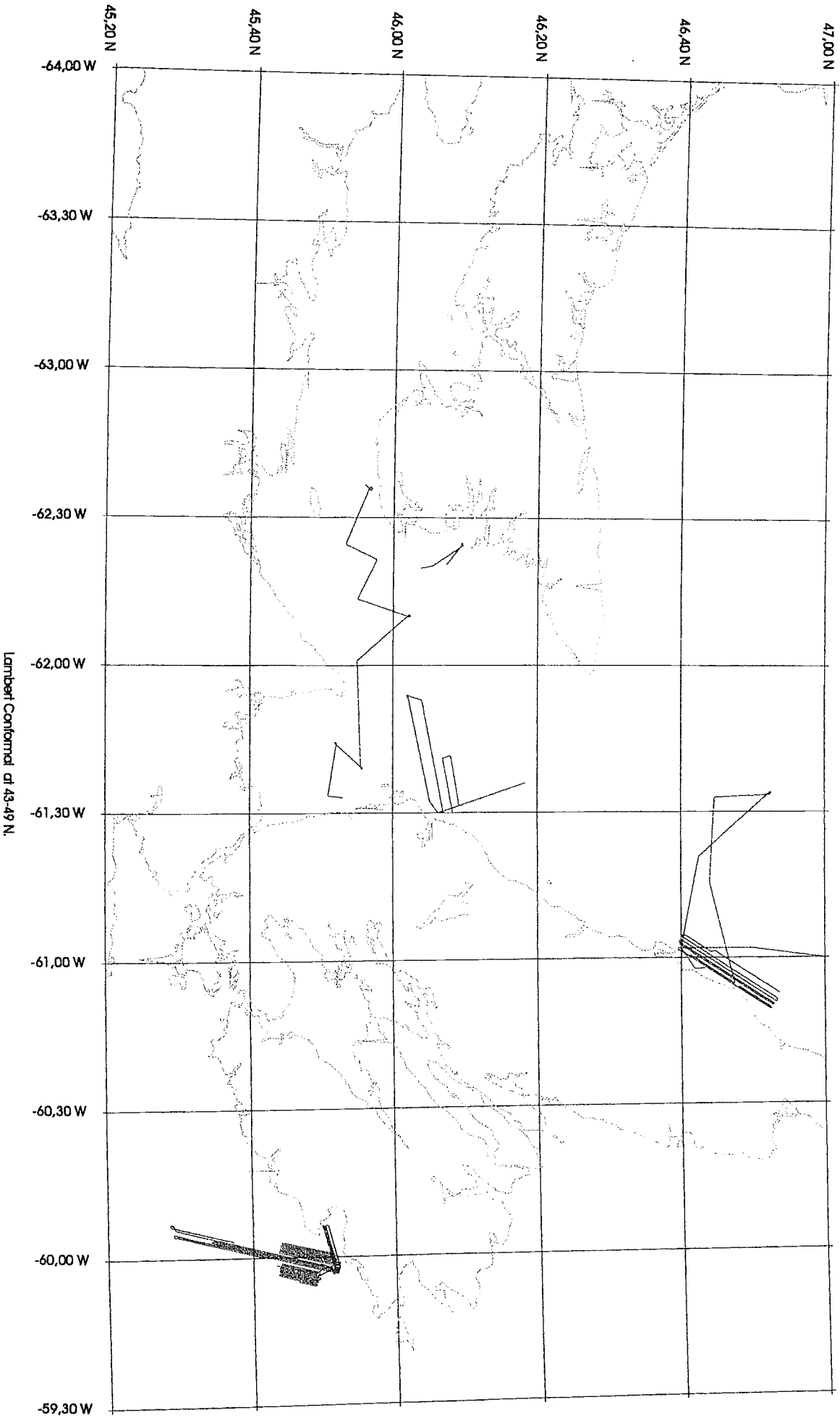
Hudson 97-058  
HUNTEC



Hudson 97-058  
SEISMICS

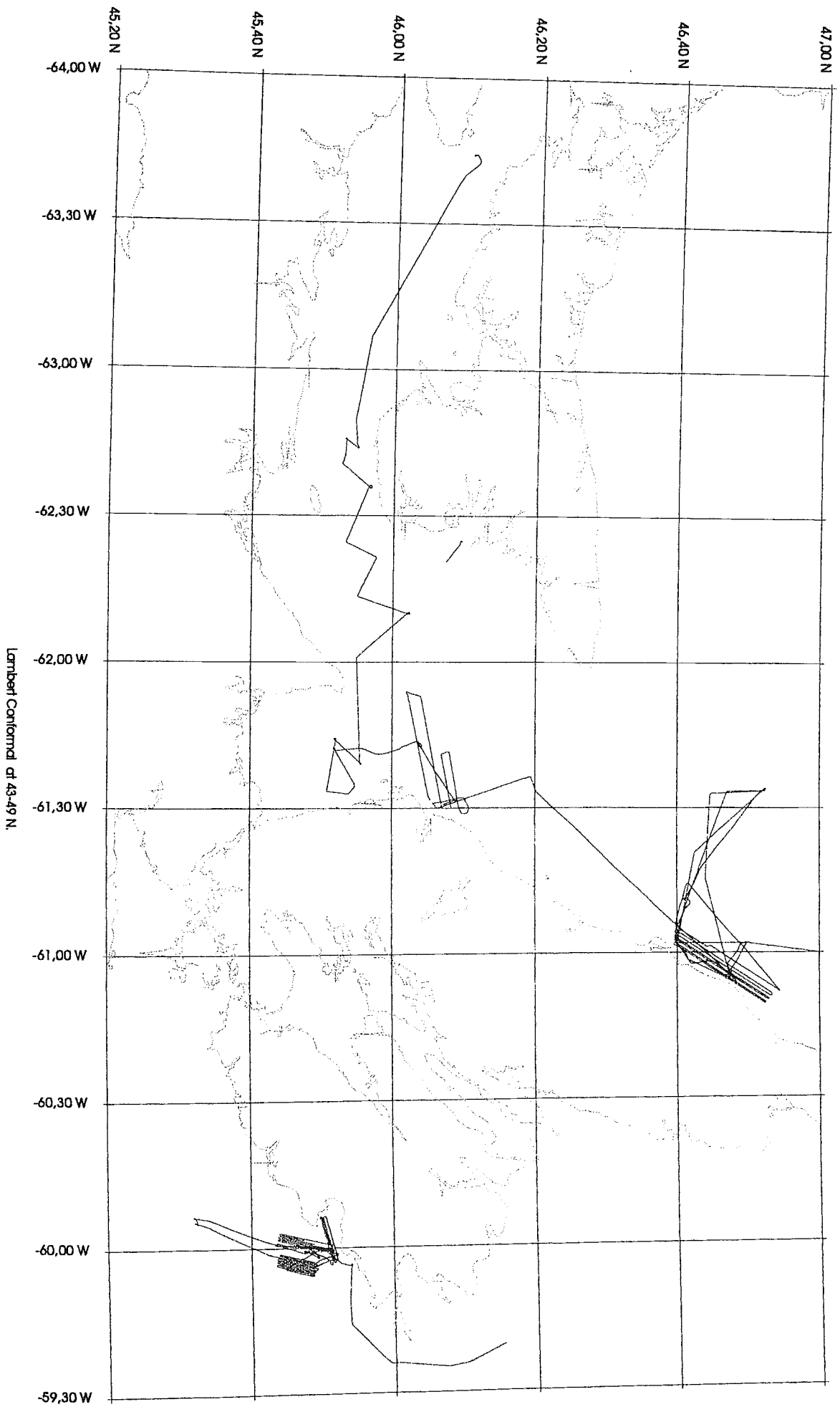


Hudson 97-058  
SIDESCAN

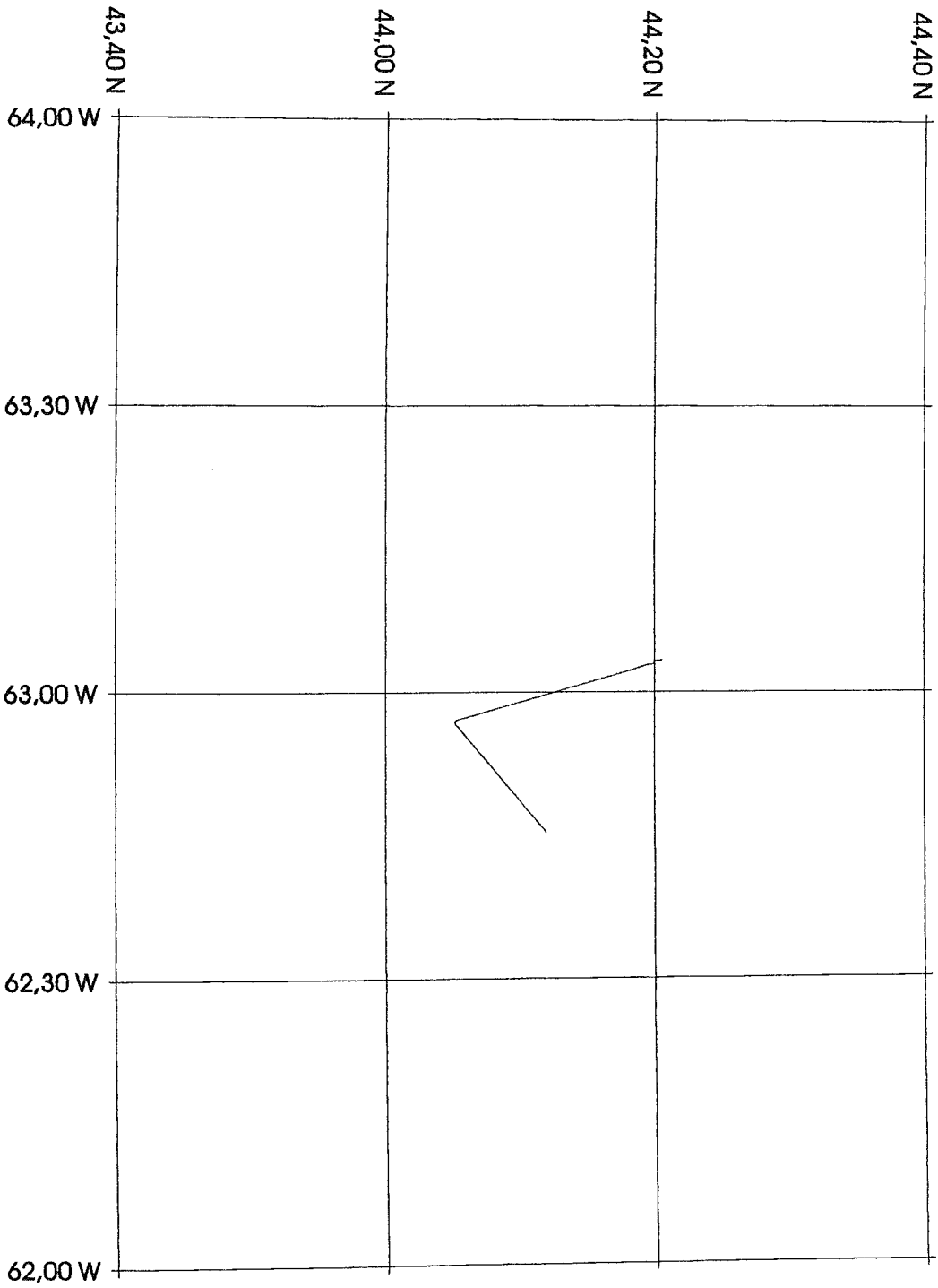




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3.5 KHZ

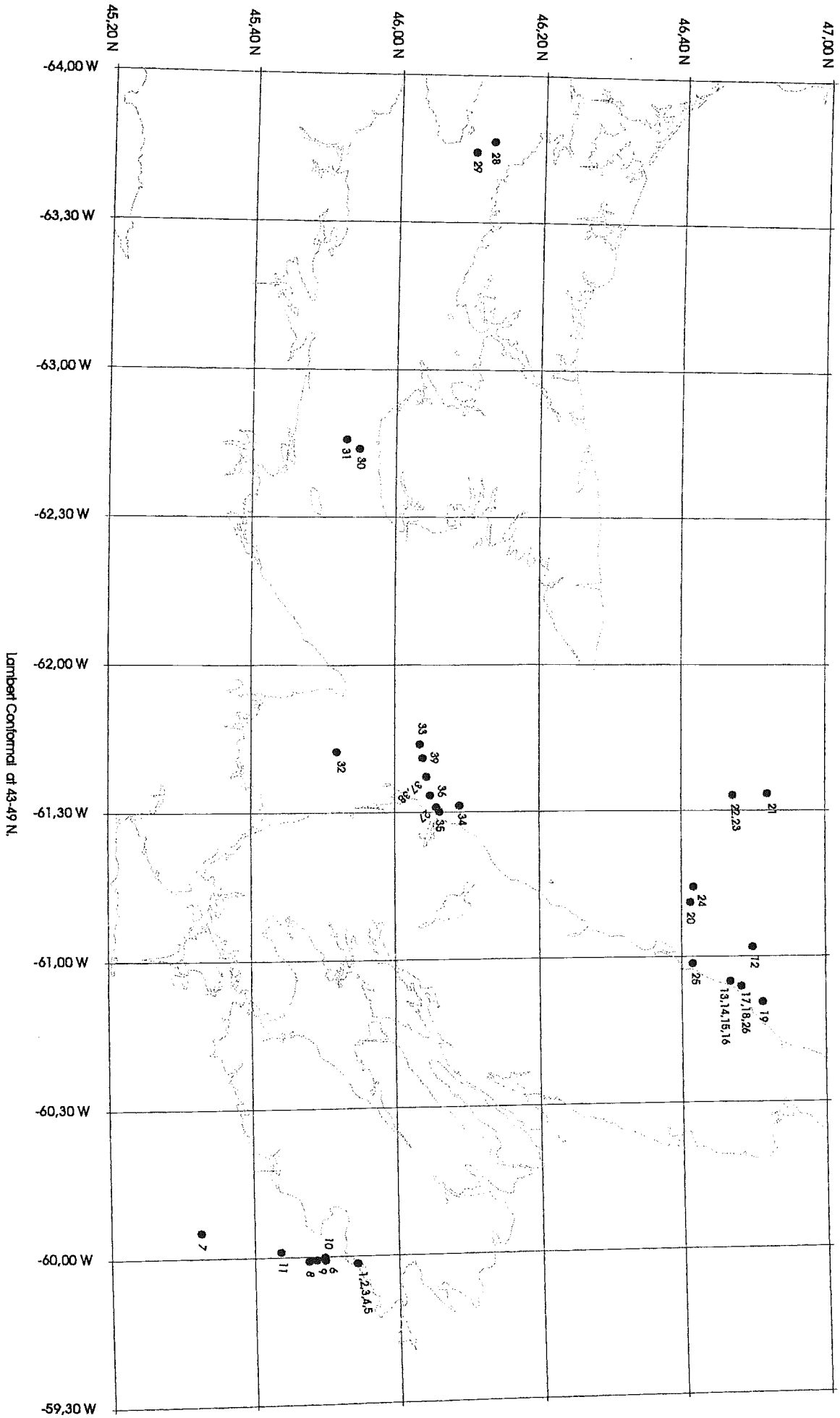


Hudson 97-058  
Day 284



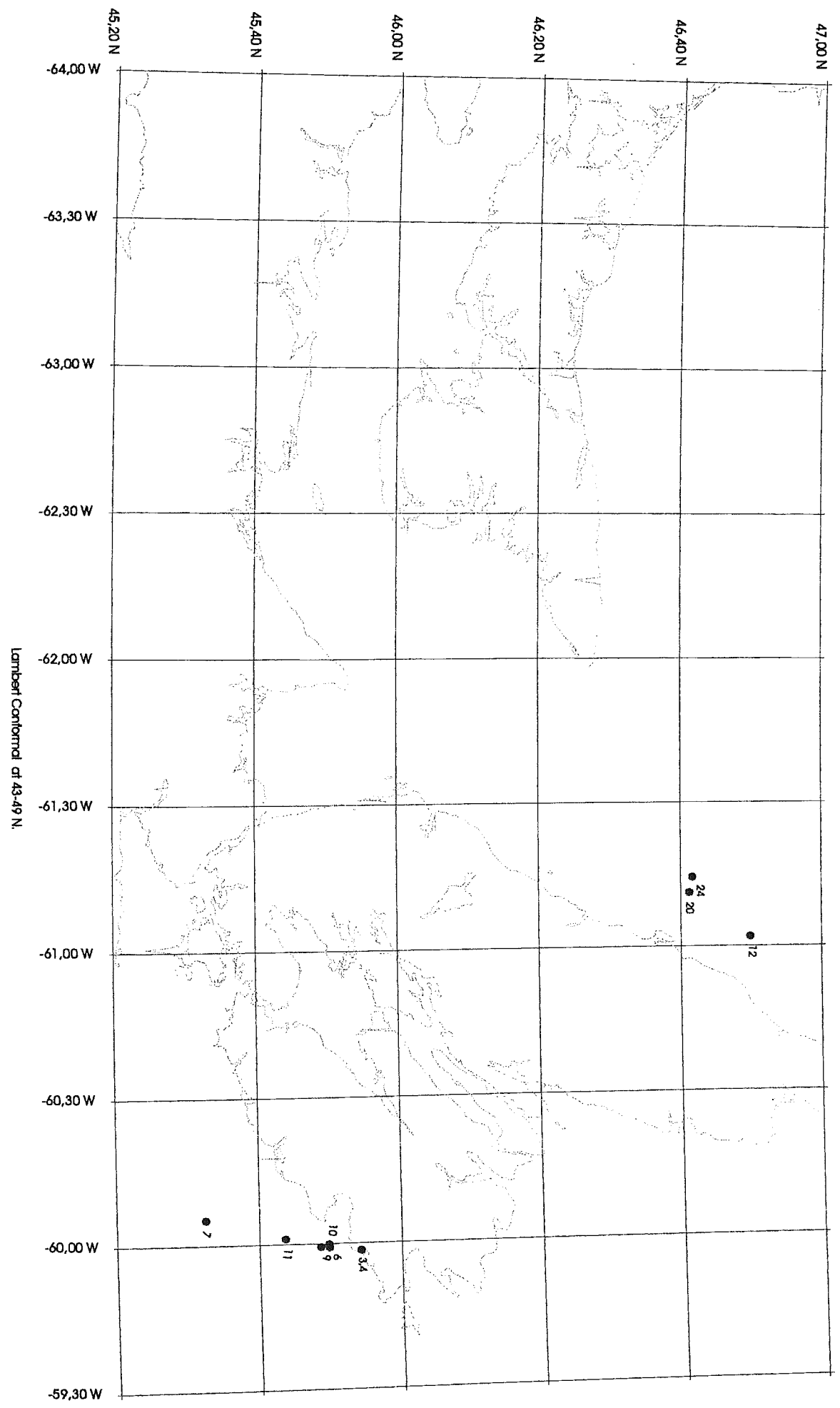
Lambert Conformal of 43,49 N.

# Hudson 97-058 Sampling Stations

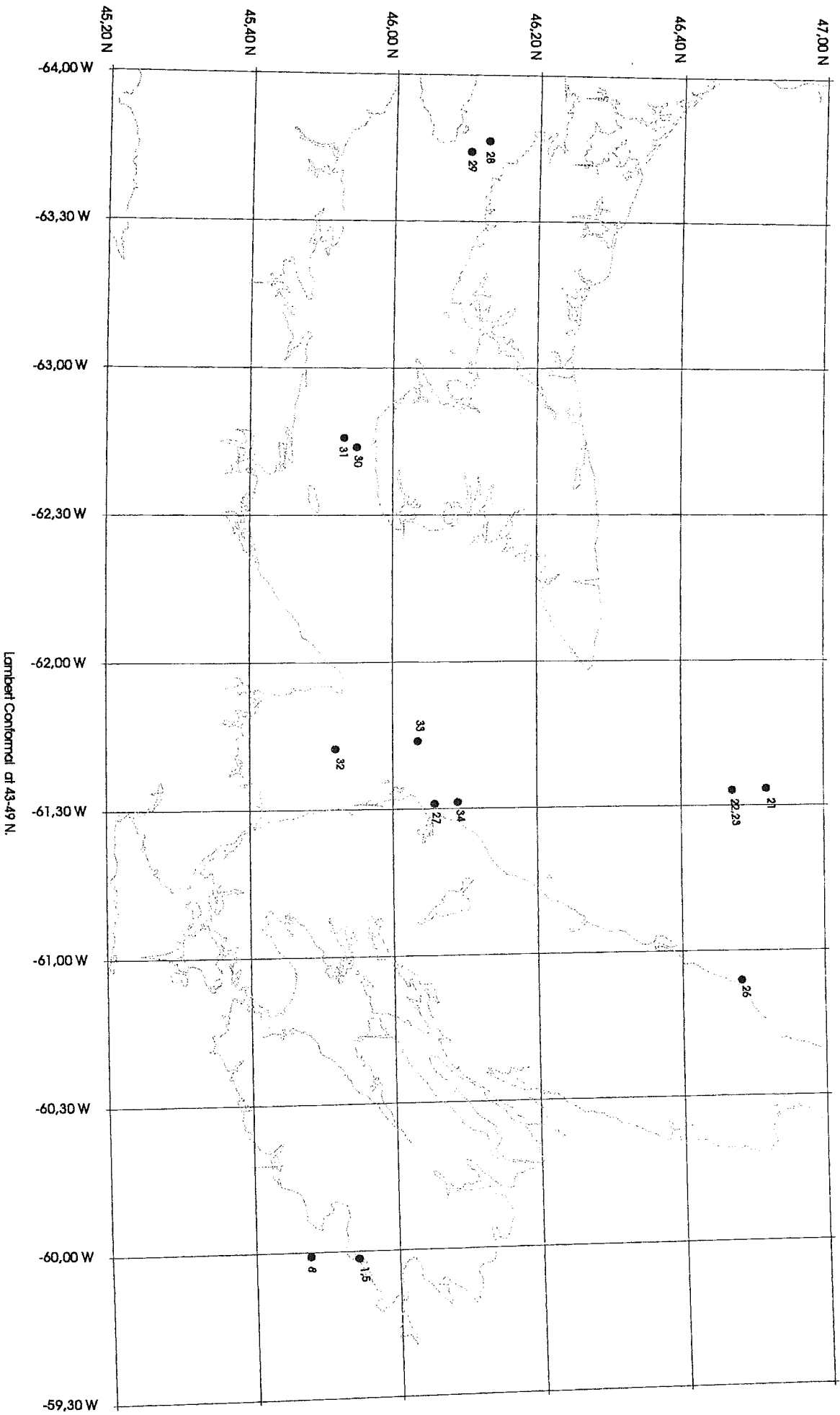




Hudson 97-058  
Piston Core Stations

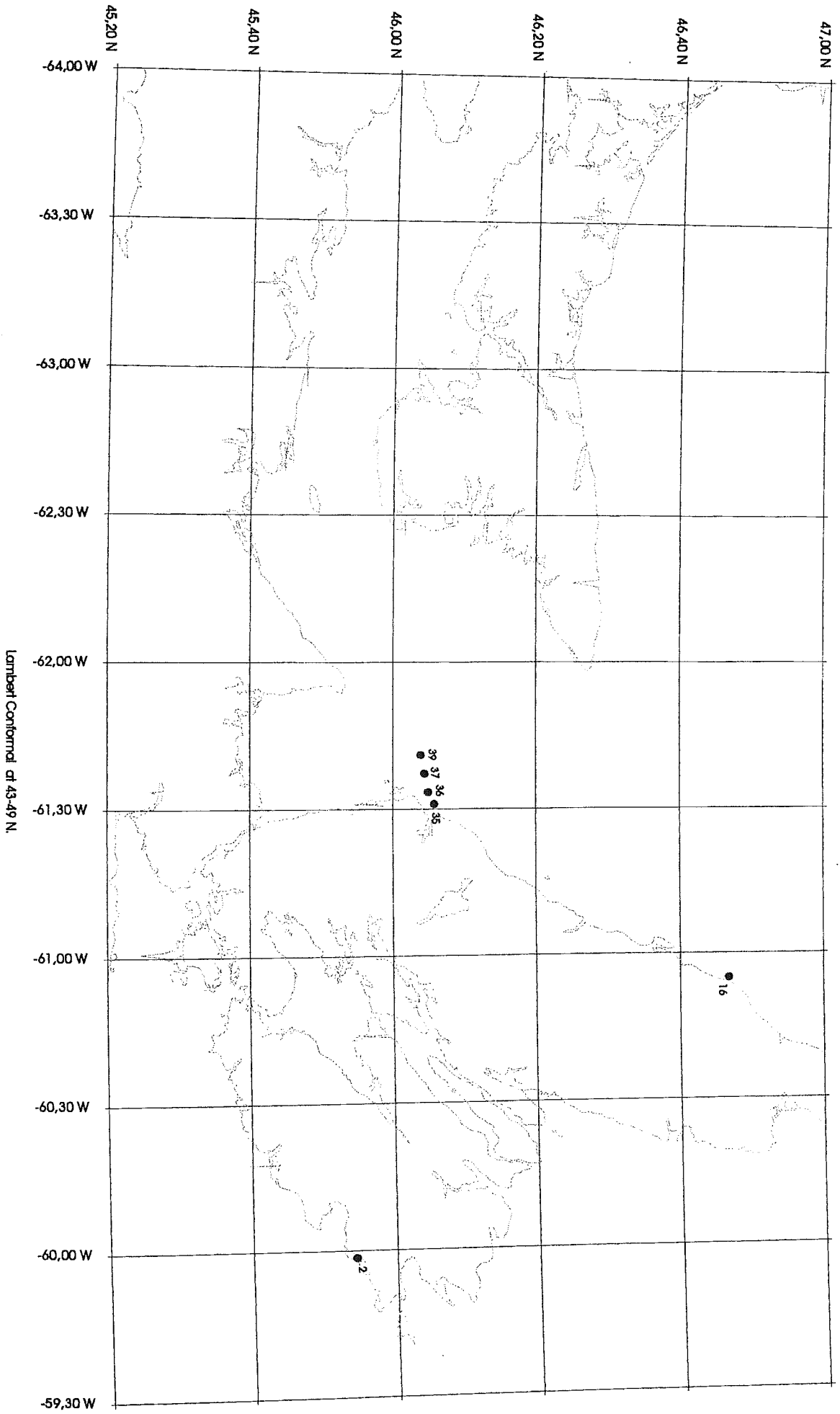


Hudson 97-058  
Vibracore Stations

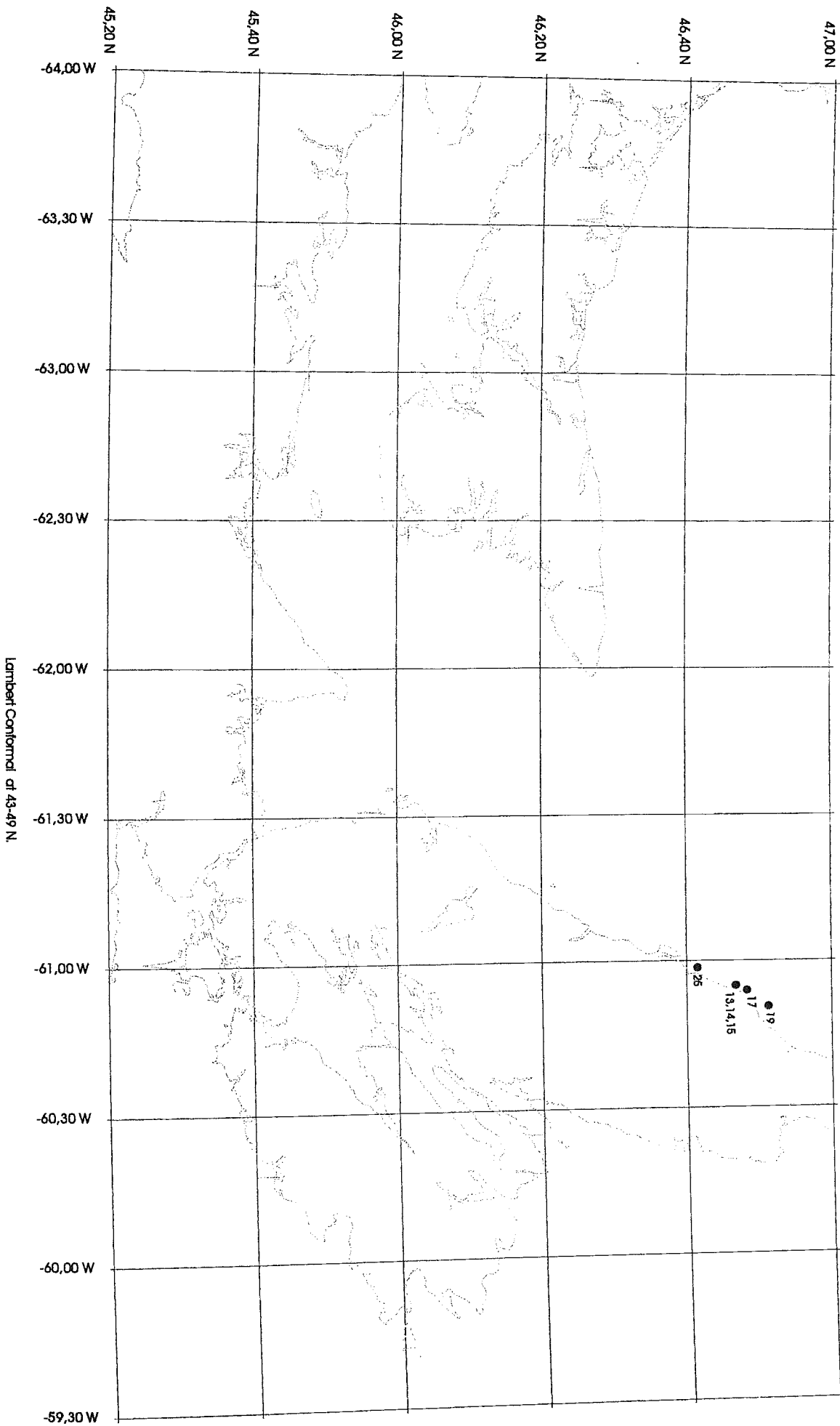


Lambert Conformal of 43-49 N.

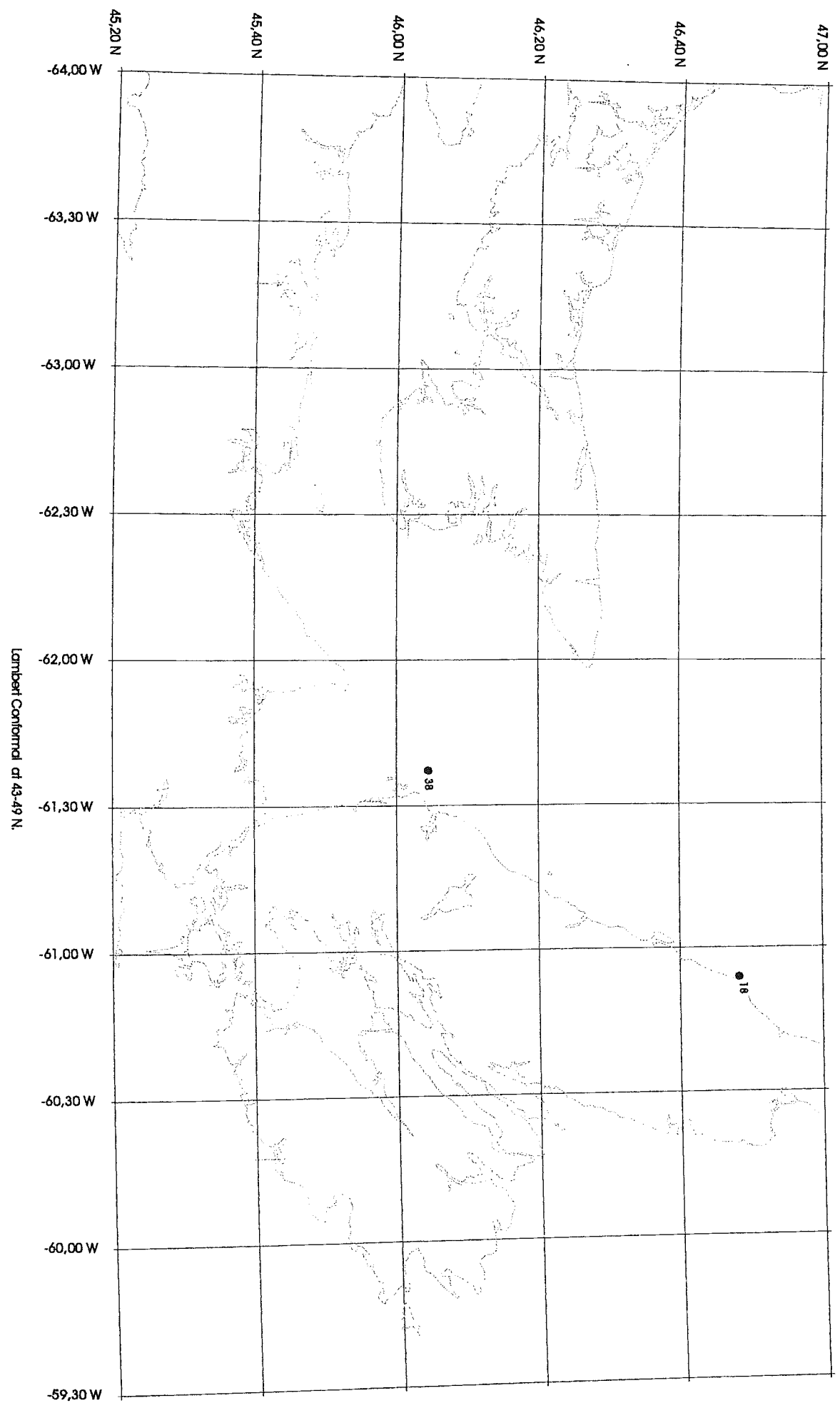
Hudson 97-058  
Camera Stations



Hudson 97-058  
IKU Stations



Hudson 97-058  
CTD Stations



# HUDSON 97-058 SAMPLE STATIONS

(From Bridge Log)

<u>STN</u>	<u>TIME</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>TYPE</u>
1	286 1149	45 54.2345	-59 53.5330	vibracore
2	286 1319	45 54.2198	-58 58.5391	camera (ship drifting)
	286 1329	45 54.2270	-59 58.4930	
3	286 1354	45 54.2460	-59 58.4637	piston core
4	286 1641	45 54.2289	-59 58.4540	piston core
5	287 1126	45 54.2332	-59 58.4491	vibracore
6	287 1930	45 49.7781	-59 59.2420	piston core
7	288 1236	45 32.4591	-60 05.2237	piston core
8	288 1557	45 47.4999	-59 59.1466	vibracore
9	288 1923	45 48.5336	-59 59.3628	piston core
10	289 1142	45 49.7042	-59 59.8999	piston core
11	289 1343	45 43.6027	-60 01.0962	piston core
12	290 1218	46 49.8558	-61 01.9943	piston core
13	290 1423	46 46.7386	-60 54.9049	IKU
14	290 1531	46 46.8294	-60 54.8620	IKU
15	290 1614	46 46.9707	-60 54.7086	IKU
16	290 1648	46 46.9333	-60 54.6990	camera (ship drifting)
	290 1718	46 46.8021	-60 54.8194	
17	290 1751	46 48.2688	-60 53.8117	IKU
18	290 1803	46 48.2310	-60 53.9550	CTD
19	290 1847	46 51.1883	-60 50.6005	IKU
20	291 1216	46 41.1953	-61 11.1789	piston core
21	291 1547	46 51.9307	-61 33.4924	vibracore
22	291 1714	46 47.1470	-61 33.1797	vibracore
23	291 1807	46 46.7475	-61 33.1655	vibracore
24	292 1431	46 41.6328	-61 14.3888	piston core
25	292 1648	46 41.4962	-60 38.6007	IKU
26	292 1856	46 48.2760	-60 53.8379	vibracore
27	293 1247	46 05.7613	-61 31.0272	vibracore
28	294 1211	46 12.9290	-63 46.5012	vibracore
29	294 1357	46 10.4348	-63 44.3041	vibracore
30	294 1811	45 54.9114	-62 43.9129	vibracore
31	294 1906	45 53.1144	-62 45.8214	vibracore
32	295 1122	45 51.9263	-61 42.4225	vibracore
33	295 1334	46 03.4901	-61 48.8587	vibracore
34	295 1532	46 08.9707	-61 31.3547	vibracore
35	295 1624	46 06.1874	-61 30.1090	camera
36	295 1653	46 04.9248	-61 33.4556	camera
37	295 1722	46 04.4053	-61 37.2447	camera
38	295 1738	46 04.3556	-61 37.1511	CTD
39	295 1759	46 03.8793	-61 41.0423	camera

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Line	Start	End	Records				
			Huntec	SE100	NSRF	Sidescan	3.5KHz
fader_1	2841746	2842105	1	1	1	n/a	n/a
fader_2	2842105	2842300	1	1	1	n/a	n/a
1	2851701	2852132	2	2	2	1	n/a
2	2852220	2860308	2	2	2	1	n/a
3	2860318	2860648	2	2	2	1,2	n/a
4	2860655	2861023	2,3	2	2	2	n/a
5	2870150	2870633	4	3	3	3	n/a
6	2862118	2870129	4	3	3	3,4	n/a
7	2870652	2870827	4	3	3	4	n/a
8	2870840	2871013	4	3	3	4	n/a
9	2880447	2880622	5	4	4	5	1
10	2880303	2880435	5	4	4	5	1
11	2880130	2880250	5	4	4	5	1
12	2872344	2880117	5	4	4	5	1
13	2872209	2872328	5	4	4	4,6	1
14	2872020	2872158	5	4	4	4	1
15	2880701	2880805	5	4	4	5	1
16	2880816	2880914	5	4	4	5	1
17	2880925	2881029	5	4	4	5	1
18	2890318	2890412	6	5	5	7	1
19	2890426	2890520	6	5	5	7	1
20	2890540	2890636	6	5	5	7	1
21	2890650	2890742	6,7	5	5	7	1
22	2890756	2890852	7	5	5	7	1
23	2890902	2890955	7	5	5	7	1
24	2891005	2891030	7	5	5	7,8	1
25	n/a						
26	n/a						
27	n/a						
28	n/a						
29	n/a						
30	n/a						
31	n/a						
32	2882020	2882217	6	5	5	7	1
33	2882230	2882349	6	5	5	7	1
34	2882357	2890106	6	5	5	7	1
35	n/a						
36	2890115	2890232	6	5	5	7	1
37	2900637	2900935	8	6	6	9	2
38	2900944	2901056	8	6	6	9	2,3
	2910934	2911058	9	7	7	12	3
39	n/a						
40	2912015	2912316	10	8	8	13,14	3
41	2912326	2920246	10	8	8	14,15	3
42	n/a						
43	2920259	2920530	10	8	8	15	3
44	n/a						
45	2920600	2920930	10,11	8	8	15	3
46	n/a						
47	2920943	2921023	11	8	8	15	3
48	n/a						
49	2921032	2921215	11	8	8	15	3
50	2900225	2900425	8	6	6	9	2

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Line	Start	End	Records				
			Huntec	SE100	NSRF	Sidescan	3.5KHz
51	2900425	2900630	8	6	6	9	2
52	2902010	2902051	9	7	7	10	3
53	2902054	2902345	9	7	7	10,11	3
54	2902348	2910231	9	7	7	11	3
55	2910248	2910412	9	7	7	11	3
56	2910416	2910630	9	7	7	11	3
57	2910639	2910928	9	7	7	11	3
58	2922230	2930055	12	9	9	16	4
59	2930102	2930119	12	9	9	16	4
60	2930120	2930415	12	9	9	16	5
61	2930421	2930445	12	9	9	16	5
62	2930445	2930752	12	9	9	16	5
63	2930756	2930807	12	9	9	16	5
64	2930809	2930948	12	9	9	17	5
65	2930952	2930959	12	9	9	17	5
66	2931004	2931123	12	9	9	17	5
67	2932215	2932253	13	10	10	18	6
68	2932313	2940002	13	10	10	18	6
69	2940009	2940210	13	10	10	18	n/a
70	2940213	2940451	13	10	10	n/a	n/a
71	2940500	2940530	13	10	10	n/a	n/a
72	2940530	2940600	13	10	10	n/a	n/a
73	2940600	2940702	13	10	10	n/a	n/a
74	2940711	2940833	13	10	10	n/a	n/a
75	2941945	2942044	14	11	11	19	6
76	2942101	2942227	14	11	11	19	6
77	2942230	2942316	14	11	11	19	6
78	2942320	2950026	14	11	11	19	6
79	2950030	2950155	14	11	11	19,20	6
80	2950207	2950400	14	11	11	20	6
81	2950404	2950700	14	11	11	20	6
82	2950702	2950759	14	11	11	20	6
83	2950813	2950937	14	11	11	20	6
84	2950940	2951014	14	11	11	20	6



## HUDSON 97-058 HUNTEC RECORDS

<u>ROLL</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	284 1735	284 2301	fader_1,fader_2
2	285 1645	286 0800	1,2,3,4
3	286 0802	286 1040	4
4	286 2105	287 1013	5,6,7,8
5	287 2016	288 1030	9,10,11,12,13,14,15,16,17
6	288 2020	289 0725	18,19,20,21,32,33,34,36
7	289 0740	289 1030	21,22,23,24
8	290 0223	290 1111	37,38,50,51
9	290 1957	291 1059	38,52,53,54,55,56,57
10	291 2005	292 0930	40,41,43,45
11	292 0933	292 1216	45,47,49
12	292 2226	293 1157	58,59,60,61,62,63,64,65,66
13	293 2213 294 0104	294 0010 294 0837	67,68,69,70,71,72,73,74
14	294 1944	295 1017	75,76,77,78,79,80,81,82,83,84

## HUDSON 97-058 3.5KHz RECORDS

<u>ROLL</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	287 1910 288 0015	287 2245 289 1920	9 to 24, 32,33,34,36
2	290 0157	290 1650	37, 38, 50,51
3	290 1910	292 1722	38, 52 to 57, 40,41,43,45,47,49
4	292 1725	293 0108	58,59
5	293 0115	293 1252	60,61,62,63,64,65,66
6	293 2217 294 1307	293 2306 295 1602	67,68, 75 to 84

## HUDSON 97-058 SIDESCAN RECORDS

<u>ROLL</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	285 2003	286 0525	1,2,3
2	286 0530	286 1028	3,4
3	286 2315	287 0352	5,6
4	287 0358 287 2020	287 1016 287 2322	6,7,8,13,14
5	287 2334	288 1042	9,10,11,12,15,16,17
6	288 2023	2882114	13
7	288 2117	289 0926	18,19,20,21,22,23,24,32,33,34,36
8	289 0928	2891034	24
9	290 0222	290 1100	37,38,50,51
10	290 1950	290 2150	52,53
11	290 2152	291 0735	53,54,55,56,57
12	291 0740	291 1059	38,57
13	291 2005	291 2250	40
14	291 2250	292 0228	40,41
15	292 0230	292 1216	41,43,45,47,49
16	292 2229	293 0810	58,59,60,61,62,63
17	293 0815	293 1124	64,65,66
18	293 2215	294 0026	67,68,69
19	294 2035	295 0056	75,76,77,78,79
20	295 0058	295 1006	79,80,81,82,83,84

# HUDSON 97-058 SEISMIC RECORDS

## SE100

<u>ROLL</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	284 1800	284 2300	fader_1,fader_2
2	285 1910	286 1025	1,2,3,4
3	286 2315	287 1013	5,6,7,8
4	287 2020	288 1030	9,10,11,12,13,14,15,16,17
5	288 2020	289 1030	18,19,20,21,22,23,24,32,33,34,36
6	290 0225	290 1100	37,38,50,51
7	290 1950	291 1100	38,52,53,54,55,56,57
8	291 2002	292 1215	40,41,43,45,47,49
9	292 2230	293 1123	58,59,60,61,62,63,64,65,66
10	293 2313	294 0833	67,68,69,70,71,72,73,74
11	294 1954	295 1016	75,76,77,78,79,80,81,82,83,84

## NSRF

<u>ROLL</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	284 1830	284 2255	fader_1,fader_2
2	285 1905	286 1025	1,2,3,4
3	286 2310	287 1015	5,6,7,8
4	287 2015	288 1030	9,10,11,12,13,14,15,16,17
5	288 2020	289 1030	18,19,20,21,22,23,24,32,33,34,36
6	290 0225	290 1100	37,38,50,51
7	290 1950	291 1100	38,52,53,54,55,56,57
8	291 2003	292 1215	40,41,43,45,47,49
9	292 2228	293 1156	58,59,60,61,62,63,64,65,66
10	293 2313	294 0833	67,68,69,70,71,72,73,74
11	294 1953	295 1016	75,76,77,78,79,80,81,82,83,84

# HUDSON 97-058 ANALOGUE TAPES

<u>TAPE</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	284 1749	284 2127	fader_1,fader_2
2	284 2127	285 2025	fader_2, 1
3	285 2026	285 2314	1,2
4	285 2314	286 0206	2
5	286 0206	286 0500	2,3
6	286 0500	286 0800	3,4
7	286 0800	286 2345	4,6
8	286 2345	287 0240	5,6
9	287 0240	287 0535	5
10	287 0535	287 0829	5,7
11	287 0830	287 2130	8,14
12	287 2130	288 0030	12,13,14
13	288 0030	288 0326	10,11,12
14	288 0326	288 0620	9,10
15	288 0620	288 0914	15,16
16	288 0914	288 2201	17,32
17	288 2201	289 0054	32,33,34
18	289 0054	289 0345	18,34,36
19	289 0345	289 0636	18,19,20
20	289 0636	289 0935	21,22,23
21	289 0935	290 0425	23,24,50
22	290 0425	290 0730	51,37
23	290 0730	290 1030	37,38
24	290 1030	290 2230	38,52,53
25	290 2230	291 0130	53,54
26	291 0130	291 0420	54,55,56
27	291 0420	291 0715	56,57
28	291 0715	291 1015	38,57
29	291 1015	291 2221	38,40
30	291 2222	292 0116	40,41
31	292 0116	292 0400	41,43
32	292 0400	292 0730	43,45
33	292 0730	292 1023	45,47
34	292 1023	292 2333	49,58
35	292 2333	293 0149	58,59,60
36	293 0149	293 0445	60,61
37	293 0445	293 0807	62,63
38	293 0807	293 1100	64,65,66
39	293 1100	294 0029	66,67,68,69
40	294 0029	294 0331	69,70
41	294 0331	294 0630	70,71,72,73
42	294 0630	294 0830	74
43	294 2000	294 2227	75,76
44	294 2230	295 0119	77,78,79
45	295 0119	295 0404	79,80
46	295 0404	295 0702	81
47	295 0702	295 0955	82,83
48	295 0955	295 1014	83,84

# HUDSON 97-058 DIGITAL TAPES

## SIDESCAN

<u>TAPE</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	??	286 0028	no end of tape, possible 11 good files
2	286 0026	287 1013	2,3,4,5,6,7,8
3	287 2020	288 0628	9,10,11,12,13,14
4	288 0628	289 0108	15,16,17,32,33,34
5	289 0109	289 0852	18,19,20,21,22,36
6	289 0857	290 1057	23,24,37,38,50,51
7	290 2010	291 1058	38,52,53,54,55,56,57
8	291 2007	292 1028	40,41,43,45,47
9	292 1028	293 1123	49,58,59,60,61,62,63,64,65,66
10	293 2215	294 0100	67,68,69
11	294 2032	295 1014	75,76,77,78,79,80,81,82,83,84

## HUNTEC

<u>TAPE</u>	<u>START</u>	<u>END</u>	<u>LINE</u>
1	284 1746	286 0951	fader_1,fader_2,1,2,3,4
2	286 0951	287 1018	5,6,7,8
3	287 2020	288 1029	9,10,11,12,13,14,15,16,17
4	288 2030	290 2346	18 to 24, 32 to 34, 36 to 38, 50 to 53
5	290 2348	292 1215	38,40,41,43,45,47,49,54,55,56,57
6	292 2215	294 0830	58 to 74
7	294 2000	295 1014	75 to 84

## TECHNICAL/ EQUIPMENT REPORTS

Four primary survey tools were used:

- 1) Hunttec DTS high resolution seismic reflection deep towed boomer
- 2) 10" cu. Sleeve gun and Beaur compressor with NSRF and SE 100" eels.
- 3) ORE 3,5 KHz hull mounted subbottom profiler.
- 4) Klein 595 dual frequency sidescan sonar system.

The Hunttec system was deployed and operated by Marty Uyesugi of Geoforce Ltd. The hard copy data from this system was recorded on an EPC 9800. The data was digitized with an AGC\_ DIG data aquisition system. Sweep rate was 1/8 second and sample interval data is noted in the log book and on tape. (See detailed description in enclosed hunttec report.)

The 10" cu. Sleeve gun was supplied with air from a Beaur 50CFM compressor which delivered 1000 psi. at a firing rate of 3 seconds.

The NSRF and SE100" eels both had filters and TVG applied to their return signals. The filters were set at 160-2500Hz for both eels. The post gain and filtered signals were recorded on a SONY PC208A DAT recorder. The NSRF hard copy was displayed on an EPC 8300 at a 5 sec. sweep rate with no delay. The SE100" eel hard copy was displayed on an EPC 9300 at a 1 sec. sweep with no delay.

An ORE 3.5KHz profiler was fired at a 1sec. rate and recorded on the SONY PC 208A recorder. The hard copy was displayed on an EPC 8300 with a 0.5 sec. sweep and no delay.

The Klein 595 sidescan system employed an armoured cable on a Marquise winch. The sidescan data was displayed at 250 and 200m range. Hard copy was printed out on its own thermal printer and digitized by a second AGC\_ DIG data aquisition system. The 100KHz was also recorded on the SONY PC 208A recorder.

All the timing for the seismic systems were originated from an AGC MITS timing computer.

All the annotation on the hard copy records was done by a TSS record annotator and a notebook computer with a GPIB interface on the annotator.

Date: 21/10/97  
To: H. Josenhans  
From: Electrical Officer, CCGS Hudson  
Subject: Vibrocorer

The following is a list of defects and repairs made to the vibrocorer:

1. Water was somehow leaking into the chambers holding the electric motors. This was found to be caused by a crack that was found in a weld where the barrel clamp bolts on the body of the unit. This leak was repaired on a temporary basis so that the unit could be used. There should be an X-Ray taken of all the welded joints to find the extent of the crack and to check for more in other locations.

2. The electric motors were unwired and megger readings were taken on each motor. One of the motors had a 2000 meg reading (good) and the other motor had a 0 meg reading (not good). The motors were removed from the chamber and taken to the electrical shop to be opened up for inspection. The bad motor was found to be full of salt water and it was then washed out with an approved electrical cleaner and water repellent, then dried in a drying oven for 12 hours. When meggered again the readings came up to 2 megs (passable). I feel the readings might have been higher if the water found in the chamber had not been in there for some time.

3. The power cable and the controller were also found to have faults which caused some of the operation problems. The controller was wired for 440 Volt operation but was metered for 220 Volts with the voltmeter and the ammeter is to light for either voltage rating. The voltmeter should be replaced with a 500 Volt meter and the ammeter should be replaced with a 30 Amp meter because the unit is using 440 Volts with a start amperage of 22 Amps. When meggered it was found that the power cord plug at the unit end had a piece broken which would not give it a watertight seal. This caused the cable to short and burn the wires. The cable was spliced twice. After finding the faulty plug the cable was hard wired to the unit removing the plug from the system.

4. When checking the electric motors it was found that the bearings were found to be very loose on the rotor shaft. They are a special bearing which we do not carry on the ship and because of the way they were installed I could not get the bearing number off them. I feel that these motors should be taken to a motor repair facility and be completely overhauled and fitted with new bearings. At this time it would be advisable to order a spare set of bearings for each motor because of them being a special type of bearing.

5. The clamp which holds the barrels in place was found to have the weld cracked in a few places. We were however, in this case, able to reweld the joints, but they should be checked again. I would recommend you carry a spare if at all possible.

TJM/TJM

**TECHNICAL REPORT  
DEEP TOW OPERATIONS  
C.C.G.S. HUDSON #97-058  
OCTOBER 11 - 23, 1997**

Submitted by:

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Prepared for:

Natural Resources Canada - Atlantic Region  
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Distribution: ~~H. Josenhans~~ H. Josenhans (EMG)  
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Project File #C135-02

Dated: October 24, 1997



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## 1.0 INTRODUCTION

This is a technical review of the Deep Tow Seismic (DTS) operations aboard the Canadian Coast Guard vessel C.C.G.S. Hudson, during Natural Resources Canada mission #97-058. This marine geophysical survey was located off Nova Scotia around Lewisbourg and Cheticamp. The field program, October 11 to 23, 1997, was directed by Senior Scientist Heiner Josenhans of Environmental Marine Geology.

The DTS was part of the geophysical survey program, which consisted of the following equipment systems.

- \* Deep Tow Boomer/Sparker profiling system
- \* Seismic system (with a 10 cubic inch HGS sleeve gun and single channel NSRF and SE100 streamer)
- \* Klein 595 100/500 kHz side scan sonar system
- \* ORE Model 130 3.5 kilohertz profiler
- \* AGC DIG Digital Logger (Klein and DTS)

Overall, DTS operations went well with no major problems to report. There was a minor problem with fluctuating signal levels at the start of the survey. This intermittent problem affected only the internal hydrophone channel. Due to various intermittent problems with the AGC #3 Systems Console, the backup Systems Console on loan from PGC was substituted on Day 285. The side scan fish tangled with the DTS streamer on Day 295 while surveying in very shallow water. For details see Equipment Performance in section 2.2.

The DTS data quality ranged from good to acceptable. In shallow water (less than 30 metres), the data quality would degrade in rough sea conditions due to the loss of effective motion compensation. Periodically, tow cable strum noise affected the internal hydrophone channel. While the former problem is unavoidable, the latter problem could have been avoided had some zippertube fairing been available.

Geoforce Consultants Limited provided technician, Martin Uyesugi under the DTS standing offer contract (D.S.S. #23420-95-01HAL) to supervise the installation, operation and maintenance of the DTS system during the field program.

## 1.1 DAILY SUMMARY

A daily summary of operations follows. All times are UTC unless otherwise noted.

<u>Date</u>	<u>JD</u>	<u>Event</u>
11/10/97	284	<p>Depart BIO jetty at 1100 hrs AST.            Deploy DTS at 1725 hours for survey off Lawrencetown, N.S.</p> <p>Survey lines # 1                    1725 - 2100                2                    2105 - 2300</p> <p>Recover gear at 2300 hours and then steam for Lewisbourg.</p> <p><i>Service Note: Minor problem with fluctuating signal level on the internal hydrophone channel. Signal level would drop intermittently, then recover to normal. Replace suspect BNC cables.</i></p>
12/10/97	285	<p>Deploy DTS at 1640 hours.</p> <p>Survey lines # 1                    1730 - 2132                2                    2132 - 0000</p>
13/10/97	286	<p>Continue survey lines</p> <p>    2                    0000 - 0308 (continuation)                3                    0318 - 0648                4                    0655 - 1023</p> <p>Recover DTS at 1030 hours.</p> <p><i>Service Note: Fluctuating signal level on the internal hydrophone still a problem. Also leak alarm went off during survey operations. Disconnect the leak alarm and replace the channel A signal processor module. Fluctuating signal level problem persists. Replace the ASP module (switch unit from second channel panel). Signal problem disappeared. Suspect the +/- 15 volt power supply in the systems console is the source of all the recent problems.</i></p> <p>Deploy DTS at 2105 hours.</p> <p>Survey lines # 6                    2118 - 0000</p>
14/10/97	287	<p>Continue survey lines.</p> <p>    #6                    0000 - 0129 (continuation)                #5                    0150 - 0633</p>

#7 0652 - 0827

#8 0840 - 1013

Recover DTS at 1020 hours.

*Service Note: New problem in the systems console (loss of fire point trigger). Suspect this is just another problem related to the 15 volt power supply. Switch to the backup systems console (PGC unit) and leave the AGC systems console under test. All the various problems cleared up after this change was made..*

Deploy DTS at 2010 hours.

Survey lines #14 2020 - 2158

#13 2209 - 2328

#12 2344 - 0000

15/10/97 288 Continue survey lines.

#12 0000 - 0118 (continuation)

#11 0129 - 0250

#10 0303 - 0435

#9 0447 - 0622

#15 0709 - 0805

#16 0816 - 0914

#17 0925 - 1029

Recover gear at 1030 hours.

Deploy DTS at 2010 hours.

Survey lines #32 2103 - 2217

#33 2230 - 2349

#34 2357 - 0000

16/10/97 289 Continue survey lines.

#34 0000 - 0106 (continuation)

#36 0115 - 0232

#transit 0232 - 0426

#18 0318 - 0412

#19 0426 - 0520

#20 0540 - 0636

#21 0650 - 0742

#22 0746 - 0852

#23 0902 - 0955

#24 1005 - 1030

Recover DTS at 1030 hours.

17/10/97	290	In transit around Cape Breton to gulf. Deploy DTS at 0220 hours.	
		Survey lines #50	0220 - 0425
		#51	0425 - 0630
		#37	0633 - 0935
		#38	0944 - 1110
		Recover DTS at 1115 hours.	
		Deploy DTS at 1950 hours.	
		Survey lines #52	2010 - 2051
		#53	2054 - 2354
		#54	2348 - 0000
18/10/97	291	Continue survey operations.	
		#54	0000 - 0231
		#55	0247 - 0414
		#56	0418 - 0639
		#57	0639 - 0928
		#38	0934 - 1058
		Recover DTS at 1100 hours.	
		Deploy DTS at 2000 hours.	
		Survey lines #40	2006 - 2316
		#41	2326 - 0000
19/10/97	292	Continue survey operations.	
		#41	0000 - 0246 (continuation)
		#43	0300 - 0600
		#45	0608 - 0930
		#47	0943 - 1023
		#49	1032 - 1215
		Recover DTS at 1230 hours.	
		Deploy DTS at 2220 hours.	
		Survey lines #58	2230 - 0000
20/10/97	293	Continue survey operations.	
		#58	0000 - 0056 (continuation)
		#59	0404 - 0119
		#60	0120 - 0415
		#61	0421 - 0445
		#62	0445 - 0752
		#63	0756 - 0807
		#64	0809 - 0948

#65 0952 - 0959

#66 1004 - 1130

Recover DTS at 1130 hours.

Deploy DTS at 2210 hours.

Survey lines #67 2219 - 2254

#68 2314 - 2350

*Service Note: Lost signal from external streamer during line #68.*

*Recover tow fish and discover that streamer had been severed.*

*Recover side scan tow fish and retrieve damaged DTS streamer.*

*Install spare streamer hydrophone.*

21/10/97 294

Deploy DTS at 0105 hours.

Continue survey operations.

Survey line #69 0105 - 0210 (join line in progress)

#70 0214 - 0431

#71 0431 - 0530

#73 0530 - 0702

#74 0702 - 0830

Recover DTS at 0830 hours.

Deploy DTS at 1945 hours.

Survey lines #75 1949 - 2045

#76 2101 - 2227

#77 2230 - 2316

#78 2310 - 0000

22/10/97 295

Continue survey operations.

#78 0000 - 0026 (continuation)

#79 0030 - 0156

#80 0207 - 0401

#81 0402 - 0700

#82 0700 - 0801

#83 0813 - 0937

#84 0940 - 1014

Recover DTS at 1015 hours.

Disconnect DTS system.

23/10/97 296

Arrive BIO at 1100 hours.

Remove equipment from vessel.

\*\*\*\* END OF MISSION \*\*\*\*

## 2.0 DESCRIPTION OF EQUIPMENT

### a) Deep Tow Seismic System

Geoforce Consultants Ltd. of Dartmouth, Nova Scotia is contracted under a Standing Offer with Natural Resources Canada to supervise the operation, maintenance and ongoing engineering development of the NRC owned Deep Tow Seismic systems. The DTS system, originally manufactured by Hunttec (70) Limited, is a high resolution, sub-bottom profiler with the acoustic source, energy supply, heave sensor, and two receiving hydrophones housed in an underwater towed body. The AGC #3 Deep Tow system has a maximum power output of 1000 joules (60 mfd storage capacitance) with an ED 10 F/C Boomer and multi tip sparker source. An LC10 single element hydrophone mounts inside the tow fish beneath the boomer. A Geoforce fifteen foot, ten element single channel hydrophone array is towed behind the fish.

The ED10 boomer is depth compensated and outputs a highly repeatable broadband pulse, capable of resolving 10 centimetres. Peak output intensity is 118 db relative to 1 micro bar at 1 metre, with a pulse duration of 110 microseconds.

The deck equipment consists of a HydroMac Oceanographic winch, which includes a multi-way NSRF slip ring and a 500 metre, 21 conductor, armoured tow cable. The winch is powered by a 440 VAC, 50 HP hydraulic pump unit. The tow cable is handled by a 36 inch diameter roller cluster rigged amidships on the aft A frame.

The lab instrumentation consists of the Hunttec Systems Console and DC high voltage power supply (PCU). The Systems Console houses the Bottom Motion Compensator circuits, the +24 volt fish supply, and modules for signal processing and tape outputs. The Hunttec Mk III PCU provides DC power to the boomer in switchable ranges from 2 to 6 kilovolts.

### b) Graphic Display, Signal Processing and System Key

Both the internal LC10 hydrophone and the external Geoforce streamer were displayed on a single EPC 9800 (s/n 134). The internal hydrophone signal was processed by the Adaptive Signal Processor (ASP) module and displayed on channel B of the EPC recorder. The streamer signal was processed by a second ASP console and displayed on channel A on the EPC recorder. A TSS 312B annotator provided time marks on the hard copy records.

The PC based MITS system triggered the DTS, ORE and AGC seismic systems. The MITS system allows several systems to be run using a common time base. The MITS masking feature significantly reduces acoustic interference by inhibiting the coincidental triggering of interfering system(s). Each source has two independent, adjustable delayed trigger outputs.

#### c) Data Recording

The DTS signals were recorded on the AGC DIG digital four channel log, tape logger.

AGC DIG Inputs	Description
Ch. #1	Internal LC10 hydrophone
Ch. #2	External MESH Streamer
Trigger	DTS +5 volt (Print Delay Trigger)

#### d) Equipment List

<u>Unit Description</u>	<u>Serial Number</u>
Tow Fish Body	1017
ED10F/C Boomer Source	2023
MK5-2 Attitude Sensor Unit	5010
S1000 Energy Storage Unit	1203
Internal LC 10 Hydrophone	---
External 15/10P Streamer	GF100
HydroMac Oceanographic Winch and Power Pack	---
Roller Cluster 36" Dia.	---
PCU Filter	120
Systems Console	105
EPC 9800 Graphic Recorder	134
Second ASP Console	101
Krohnhite 3550 Filter	1849
AGC DIG Data Logger	---



## 2.1 EQUIPMENT SETTINGS

The following equipment settings were used for the majority of DTS survey lines.

Parameter	Setting
Fire rate	.500 seconds
PCU power setting	3 - 4 kilovolts (135/240 joules)
ESU power setting	30 microfarad (540 joules max.)
BMC (motion compensation)	Pressure Mode
Display Gain	Internal - Adaptive Mode TVG External - Fixed +20 Db. Gain
Filter Setting	Internal - 2000 - 6000 hertz External - 800 - 3500 hertz
Processor Gain (System Console)	3 or 4 KV (both channels)
MITS masking	ON (masking one of six shots)
EPC sweep speed	125 msec.
EPC print polarity	positive

## 2.2 EQUIPMENT PERFORMANCE

### Overview

Overall, DTS equipment performance was considered good with less than two hours total system downtime. However, there were several problems with the AGC #3 Systems Console. The problems were intermittent and were more frustrating than serious in nature (ie unexplained leak alarms, signal level fluctuations, DC offsets on tape outputs, loss of trigger, timing glitches). These problems can be traced back to this season's first cruise and possibly to last season. Due to concerns with the reliability of the AGC #3 Systems Console, a backup Systems Console from the PGC system was requested just prior to this cruise.

In general, the DTS data quality ranged from good to just acceptable. Two factors were responsible for the degraded data quality. The first factor was the combination of shallow water

depths (less than 30 metres) and rough sea conditions. Under these conditions, the motion compensation circuitry cannot deal with the violent heave movements of the tow fish and the induced heave from surface wave noise. Lowering the tow fish normally decouples the tow fish and attenuates the wave noise, however, in shallow water this is not an option. This problem is a design limitation of the DTS and cannot be avoided. The second factor which degraded data quality was tow cable strumming. This problem can be minimized by installing zippertube fairing on the tow cable. Unfortunately, the supply of fairing was exhausted several years ago.

#### Tow Cable Strumming Noise

As mentioned in previous cruise reports, noise generated by tow cable strumming degrades the data quality on the internal hydrophone channel. Cable strum noise appears as dark vertical streaks across the internal hydrophone record. Actually the noise is generated by a mechanical rattle that is transferred to the tow fish from the vibrating tow cable. The external streamer is not affected because it is towed behind the tow fish, which isolates the streamer from the noise in the tow fish, and the streamer design cancels noise that arrives along the direction of its tow axis.

During this survey, it was evident that cable strum noise was particularly bad at 20 to 30 metre fish depth. Unfortunately, a significant part of this survey was in water depths that required the fish to be flown between those depths. The tow fish depth window is constrained in shallow water (40 to 60 metres depth) by interference from the surface return multiple on the one hand and ringing from the boomer source on the other.

#### Systems Console

The AGC #3 Systems Console has been in service for 25 years and is beginning to display an assortment of intermittent problems. The AGC Systems Console was taken out of service part way through the cruise but allowed to run under test. Problems could take two or three days to develop but then only intermittently. Even more puzzling, a problem could develop in the signal processor module, then disappear and a different problem develop in the ASP module, and that problem would go away if you pulled out another module which was functioning perfectly. The one common thread may be the 15 volt #975 power supply. During testing the supply voltage would drop when the problems occurred but it was uncertain if the power supply was overheating or if faulty component(s) on the board(s) were loading down the power supply.

### Streamer Hydrophone

The damaged streamer hydrophone will require repairs during the winter refit. All the components were recovered except for one AQ16 hydrophone element. This is not the first time the side scan fish has snagged the DTS streamer. The contributing factor was the very shallow water depths (11 metres) which forced the DTS and side scan tow fish to be pulled up close to the surface. Perhaps the current towing configuration and deck layout on the Hudson should be examined.

### HydroMac Winch

The HydroMac winch was inspected and greased prior to this cruise. There was no repeat of the sticking brake cylinder from the previous field survey. Following this field program the winch should be lubricated and stored under cover. The quick disconnect hydraulic fittings are worn and should be replaced during the winter refit.

### Parts Consumed

- no parts consumed

## **3.0 RECOMMENDATIONS**

- 1) A quantity of Zippertube fairing should be ordered. The Zippertube fairing is effective at reducing cable strumming. Although the price has gone up over the years, a 100 foot roll per system should last two years. The alternative is to accept noisy records on the internal hydrophone channel.
- 2) The damaged streamer hydrophone will require repairs. Some minor damage to the tail fin, starboard side skin and nose bolt should be repaired during the winter refit.
- 3) The work on the AGC #3 Systems Console is ongoing. Geoforce will replace the power supplies and continue to monitor the unit. Thus far the work has been covered under Geoforce's refit warranty. If this does not solve the problem, it may be time to consider replacing the Systems Console.
- 4) The Systems Console has been subject to many repairs over the last 25 years. The boards are tightly packed with components making service difficult. Some of boards that have been repaired so many times that service is becoming a problem. In addition some parts have been

discontinued or are difficult to source. Certain components such as the capacitors across the supply lines are failing due to age.

- 5) Bruce Wilde examined the Systems Console and thinks it would not be difficult to reverse engineer the unit. A replacement Systems Console could be simplified, unused circuitry eliminated and obsolete components replaced. Since 1992 Geoforce has developed a business supporting current DTS owners. We feel that an upgraded Systems Console is a worthwhile project and would be interested in partnering with Natural Resources Canada.
- 6) In light of the damage to the DTS streamer, it may be worthwhile to examine the towing layout on the quarter deck of the Hudson. Currently the DTS is normally towed amidships and the side scan on the port quarter. In the distant past, the DTS was towed from the starboard quarter which provided maximum separation between the side scan and DTS tow fish. The introduction of the Hampton crane and the larger DTS system (larger fish, larger winch and the tow fish cradle) reduced the space available on the starboard side. It may be worthwhile to see if the DTS can still be placed on the starboard side. All parties should be consulted, as the seismic system and other equipment have to be accommodated.

**WATCH KEEPER'S LOG**



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# WATCHKEEPERS LOG

## HUDSON 97-058

PROJECT C135-02 DATE OCT 11/97  
 VESSEL CSS HUDSON CLIENT NRC - ATLANTIC  
 LOCATION OFF LALIBRE BANK SHEET NO. 1

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS				
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC GAIN		RANGE SCALE	INITIAL	MAX	SLOPE
284	1725	#1					50	3	V	3/4	4	4						INVENTORY TOOL KIT
	1734	#1					66	3	V	1/2	4	4						SHORT TARE - DEEP LOT SOCKETS
	1746	#1					66	3	V	1/2	4	4						- HACKAWAY BLADES
	1807						66	3	V	1/2	4	4						- H.D. DIAG. CUTTERS
	1828																	- LARGE NEEDLE NOSE
	1900																	- KNIFE
																		- ASST. FILES - LG HALF
																		- MIN. SCREW DRIVER
																		130 DEADLY DTS
																		INCREASE FIRE RATE / MARKING ON
																		SOFT AGE DIGS 100 MS SAMPLE
																		TUG OFF / +20db gain setting
																		ACC DIGS NOT LOGGING - LOGGING
																		184 FIX

<b>HUNTEC DTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.		<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Souncer <input type="checkbox"/> Side Scan		<b>CONSOLE SETTINGS:</b> ASP Gain _____ Fixed Spr. _____ Preset _____ Adap. _____ Pressure _____ Heave _____ Normal _____ BMC Mode _____		<b>PROFILER GRAPHICS:</b> Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ Filter - Hz Low _____ Print _____ INT. _____ EXT. _____ + ± - _____		<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____		<b>OPERATORS:</b> _____ _____ _____	
--	--	---	--	--	--	--	--	---	--	--	--



OFFSHORE TECHNICAL SERVICES  
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 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3J9

# WATCHKEEPERS LOG

## HUDSON 97-058

PROJECT C135-02 DATE Oct 11/97  
 VESSEL HV 97-058 CLIENT NRC-MR  
 LOCATION \_\_\_\_\_ SHEET NO. 2

DATE/TIME	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS
	JULIAN DAY	TIME GMT	TAPE #	SHIP SPD	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	RANGE SCALE	GAIN SETTINGS	U-D	
284	2000	1-2	164	65	3	✓	1/2	4	4		186		SOE #2 ACC DIGS
284	2100	1-2	156.7	67	3	✓	1/2	4	4				END of LINE #1
	2105	2-1-3	045	49	3	✓	1/2	4	4				START #2 ACC-DIGS FILE #3
	2137	2-1-3	42	47	3	✓	1/2	4	4		223		
	2202	2-1-3	43	48	3	✓	1/2	4	4		229		
	2232	2-1-3	41	46	3	✓	1/2	4	4		237		
284	2300	2-1-4		5.06	3	✓	1/2	4	4		241		EOF #3 ACC DIGS / SOE #4
													EOF

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altrim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain: Fixed  Spr. Preset  
 BMC Mode:  Pressure  
 Heave  
 Normal

**PROFILER GRAPHICS:**  
 Sweep (msec): 1.25  
 Hydrophone type: 1600  
 Filter - Hz High: 800  
 Filter - Hz Low: 3.000  
 Print: EXT

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P. O. Box 896, Dartmouth, Nova Scotia, Canada B2Y 3J9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT C135-02 DATE Oct 12, 1997  
 VESSEL CCGS HUDSON CLIENT ESC-17  
 LOCATION \_\_\_\_\_ SHEET NO. 3

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS					
JULIAN DAY	TIME GMT	LINE #	TAPE #	TAPE FOOT	H.D.G.	SHIP SPO	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	DELAY MS		RANGE SCALE	INITIAL	MAX	SLOPE	U.D. M
285	1640	5	1-5		328	4.3	20	2	✓	750	3	3	75					67	BEAR IN WATER a WORKING
	1701	50L	1-5		178	4.1	20	2	✓	750ms	3	3	"					50	POWER REDUCED TO 3KV IN SEA WATER SOL #1
	1730		1-5		191	4.7	20	2	✓	750	3	3	"						SOL #1
	1745												50						
	1824		1-6		187	4.9	26	2	✓	750ms	3	3	50					74	SOF #6 APP--DIGS
	1842																	96	INCREASE DIS POWER TO 4KV
	1900		1-6		193	4.5	47	2	✓	750ms	4	4	125						LOWER FISH - INCREASE PRINT
	1930		1-7		192	4.9	32	2	✓	750	4	4	125					85m	
	1934									500									INCREASE FIRE RATE 500ms MITS ON
	1943																		LEAK DETECTOR ALARM ON!
	2012		1-7		199	4.7	50	2	✓	500	4	4	175					155	DISCONNECT LEAK DETECTOR (P) 15 NOV
	2103		1-8		187	5.1	49	2	✓	500	4	4	200					172	
	2132		1-8		186	5.3	45	2	✓	500	4	4	200					164	
	2139																		1.57 MB left on Eulbyte

**HUNTECDTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain: Fixed  Spr  Preset   
 BMC Mode:  Pressure  Heave  Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.) 1.25  
 Hydrophone type 20654  
 Filter - Hz High 3000  
 -Hz Low 300  
 Print EXT

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**





OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
P. O. Box 586, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT C135-02 DATE Oct 12, 97  
VESSEL CSS Hudson CLIENT GSC-A  
LOCATION \_\_\_\_\_ SHEET NO. 4

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL			PROFILER				SIDE SCAN			COMMENTS		
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	RANGE SCALE	INITIAL	MAX		SLOPE	
285	21:39	<del>2</del>	<del>2</del>	1-10	14	4.7	47	2	✓	0.5	4	4	225				162	SOL 2 (Marty working on unit)
285	22:20	50L	2	1-10	14	4.5	49	2	✓	0.5	4	4	225				166	
285	22:59		2	1-11	16	4.4	48	2	✓	0.5	4	4	200				159	change delay course new DAT #4
285	23:45		2	1-11	15	4.5	49	2	✓	0.5	4	4	200				158	check compass
286	00:18		2	1-12	13	4.4	49	2	✓	0.5	4	4	175				124	change delay Hunter, Bromer
286	00:26		2	2-1	9	4.5	45	2	✓	0.5	4	4	175				128	change target on NBS #2
286	01:01		2	2-1	17	5.0	48	2	✓	0.5	4	4	100				111	change delay
286	01:30		2	2-2	16	5.2	36	3	✓	0.5	4	4	100				94	change file sigs #2
	01:45		2	2-2	11	4.5	28	3	✓	0.5	3	3	50				89	Reduce power level to 3KV
	02:04		2	2-2	9	5.1	14	3	✓	0.5	2	2	25				53	change file sigs 2KV
	02:41		2	2-3	14	5.1	23	3	✓	0.5	2	2	25				68	change file sigs #3
	03:03		2	2-4	14	4.9	23	3	✓	0.5	2	2	25				56	EOL 2
	03:08		2	2-4	14	4.9	23	3	✓	0.5	2	2	25					

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain \_\_\_\_\_  
 BMC Mode \_\_\_\_\_  
 Fixed \_\_\_\_\_  
 Spr. \_\_\_\_\_  
 Preset \_\_\_\_\_  
 Adap. \_\_\_\_\_  
 Pressure \_\_\_\_\_  
 Heave \_\_\_\_\_  
 Normal \_\_\_\_\_

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - HZ High \_\_\_\_\_  
 -HZ Low \_\_\_\_\_  
 Print \_\_\_\_\_

**INT.** \_\_\_\_\_ **EXT.** \_\_\_\_\_  
 + ± -

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography  
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# WATCHKEEPERS LOG HUDSON 97-058

PROJECT C135-02 DATE Oct 13/97  
 VESSEL HU97-078 CLIENT NRC-MTL  
 LOCATION LEWISVILLE SHEET NO. 5

DATE/TIME	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS
	JULIAN DAY	TIME GMT	TAPE #	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE (M) SP.	FIRE RATE	PCU KV	PROC. GAIN	DEPT. RANGE (M)	GAIN SETTINGS INITIAL MAX SLOPE	
286 03:18			3 2-4	200	26	3	✓	0.5	2	2	50		26 SOL 3
286 04:00			3 2-4	192	28	3	✓	0.5	2	2	50		28
286 04:30			3 2-5	193	38	3	✓	0.5	2	2	75		38
286 05:00			3 2-5	194	38	3	✓	0.5	2	2	75		38
286 05:30			3 2-5	195	38	3	✓	0.5	2	2	100		38
286 06:00			3 2-5	193	49	3	✓	0.5	2	2	100		49
286 06:30			3 2-6	194	49	3	✓	0.5	2	2	225		49
286 06:48			3 2-6	185	52	3	✓	0.5	4	4	225		52 EOL 3 ACL
286 06:55			4 2-7	155	46	3	✓	0.5	4	4	200		46 SOL 4
286 07:30			4 2-8	019	42	3	✓	0.5	4	4	200		42
286 08:00			4 2-8	018	43	3	✓	0.5	4	4	150		43 EOL #6 <del>Super Change</del> For Hunter
286 08:30			4 2-9	018	31	3	✓	0.5	4	4	125		31
286 09:00			4 2-9	017	31	3	✓	0.5	4	4	125		82 DELAY CHANGED TO 160 M/S
286 09:04			4				✓		3	3			91 DECREASE POWER 3KV
286 09:30			4 2-10	017	32	3	✓	0.5	3	3	100		91

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain  Fixed  
 Spr.  
 Preset  
 Adap.  
 BMC Mode  Pressure  
 Heave  
 Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.) EXT 125  
 Hydrophone type INT 440  
 Filter - Hz High 400  
 - Hz Low 200  
 Print EXT 125  
 +  
 -

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_





OFFSHORE TECHNICAL SERVICES

Argo Building, Bedford Institute of Oceanography  
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# WATCHKEEPERS LOG

PROJECT C 1635-002 DATE Oct 13/97  
VESSEL HN 97-C58 CLIENT NEC - APL  
LOCATION LEWISBURG SHEET NO. 7

DATE/TIME	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS						
	JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HOG. FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE		PROJ. KV	PROC. GAIN	DELAY	RANGE SCALE	GAIN SETTINGS	U.D.
286	2314			6	2-13		186	5.2	56	3-4	✓	0.5	4	4	150				
287	0007			6	2-14		181	4.1	42	3-4	✓	0.5	4	4	150				
	0030			6	2-14		196	5.7	41	3-4	✓	0.5	4	4	175				
	0100			6	2-14		193	5.7	42	3-4	✓	0.5	4	4	175				
	0129		FOL	6	2-14														
	0150		SOL	5	2-17		358	4.7	42	3-4	✓	0.5	4	4	200				146 FIX
	0230			5	2-17		12	3.8	43	3-4	✓	0.5	4	4	235				180 FIX
	0300			5	2-18		16	4.3	42	3-4	✓	0.5	4	4	200				178 FIX
	0330			5	2-18		11	4.9	40	3-4	✓	0.5	4	4	200				FOL # 6
	0400			5	2-19		11	4.8	40	3-4	✓	0.5	4	4	175				SOL # 5
	0430			5	2-19		17	5.3	39	3-4	✓	0.5	4	4	75				175 FIX
	0500			5	2-20		13	5.3	40	3-4	✓	0.5	4	4	125				154
	0530			5	2-20		16	5.5	40	3-4	✓	0.5	4	4	100				160
	0600			5	2-21		14	5.4	27	3-4	✓	0.5	4	4	50				135
287	0633		FOL	5	2-21		08	5.0	16	3-4	✓	0.5	4	4	50				109
																			104
																			90
																			55
																			66

**HUNTEC OTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Post. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain INT  
 Fixed INT  
 Spr. INT  
 Preset INT  
 Adap. INT  
 Pressure INT  
 Heave INT  
 Normal INT

**PROFILER GRAPHICS:**  
 Sweep (msec.) INT  
 Hydrophone type INT  
 Filter - Hz High INT  
 -Hz Low INT  
 Print INT

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**



OFFSHORE TECHNICAL SERVICES

Argo Building, Bedford Institute of Oceanography,  
P O Box 596, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT: C-135-02 DATE: 07/14/97  
VESSEL: H.R. 97-100 CLIENT: NEWFAS  
LOCATION: NEWFAS SHEET NO.: 8

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS			
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HOG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE (M, SP)	FIRE RATE	PCU KV	PROC GAIN		RANGE SCALE	GAIN SETTINGS	FL-61
287	0652	SOL	7	5-22		180	4.3	16	3-4	✓	0.5	4	4			53	SOL #7
287	0701		7	2-21		200	5.2	27	3-4	✓	0.5	4	4			65	
287	0730		7	2-22		195	5.0	21	3-4	✓	0.5	4	4			77	
287	0800		7	3-21		195	5.1	30	3-4	✓	0.5	4	4			94	EOL #7
287	0827	EOL	7	1-22		192	5.1	36	2-4	✓	0.5	4	4			80	SOL #8
287	0840	SOL	8	2-23		175	4.0	36	3-4	✓	0.5	4	4			73	
287	0931		8	2-24		13	4.9	19	3-4	✓	0.5	4	4			66	
287	1000		8	2-24		13	5.3	19	3-4	✓	0.5	4	4			50	EOL #8. Recover Gen
287	1013	EOL	8	2-24		16	5.3	19	3-4	✓	0.5	4	4			56	SOL #14 Deploy gen
287	2020	SOL	14	3-1		193	4.9	27	2	✓	0.5	4	4			36	
287	2100		14	3-1		190	4.3	13	2	✓	0.5	4	4			40	
287	2130		14	3-1		196	4.3	13	2	✓	0.5	4	4			57	EOL #14
287	2158	EOL	14	3-2		193	4.2	21	2	✓	0.5	4	4			50	
287	2204	SOL	13	3-2		195	5.9	28	2	✓	0.5	4	4			50	SOL #15
287	2235		13	3-2		13	5.2	26	2	✓	0.5	4	4			52	

HUNTEC DTS:	OTHER EQUIP:	CONSOLE SETTINGS:	PROFILER GRAPHICS:	TAPE SETTINGS:	OPERATORS:
<input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.	<input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	ASP Gain: _____ Fixed Spr. _____ Preset _____ Adap. _____ BMC Mode: _____ Pressure _____ Heave _____ Normal _____	Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ -Hz Low _____ Print _____ INT. _____ EXT. _____	CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____	OPERATORS: _____ _____ _____

PROJECT C 135. C-2 DATE Oct 14/87  
 VESSEL HN 47-C-58 CLIENT NRC - ATL  
 LOCATION LEWISBURG SHEET NO. 9

# WATCHKEEPERS LOG

**GEOFORCE CONSULTANTS**  
 OFFSHORE TECHNICAL SERVICES  
 Arco Building, Bedford Institute of Oceanography  
 P. O. Box 896, Dartmouth, Nova Scotia, Canada B2Y 3Y9

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS		
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	HOG. FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	RANGE SCALE		GAIN SETTINGS	
						BM.	SP.						INITIAL	MAX	SLOPE	
287	2258		13	3-2	14	5.3	11	2	V	0.5	4	4			34	
287	2328	EOL	13	3-2	18	5.0	19	2	V	0.5	4	4			57	EOL #13
287	2344	SOL	12	3-3	59	4.8	19	2	V	0.5	4	4			59	SOL #12
288	2400		12	3-4	146	5.0	19	2	V	0.5	4	4			65	
288	2430		12	3-4	146	4.3	14	2	V	0.5	4	4			47	
288	0101		12	3-4	199	4.5	14	2	V	0.5	4	4			57	
288	0118		12	3-4	193	4.4	14	2	V	0.5	4	4			76	EOL #12
288	0124	SOL	11	3-5	14	6.1	14	2	V	0.5	4	4			85	SOL #11
288	0200		11	3-5	14	5.8	14	2	V	0.5	4	4			61	
288	0230		11	3-5	12	5.5	14	2	V	0.5	4	4			67	
288	0250	EOL	11	3-5	16	4.6	23	2	V	0.5	4	4			58	EOL #11
288	0223	SOL	10	3-6	199	5.1	22	2	V	0.5	4	4			61	SOL #10
	0405	EOL	10	3-7			17								87	EOL #10
	0447	SOL	9	3-8	03	5.3	17	2	V	0.5	4	4			72	SOL #9
	0622	EOL	9	3-8	13	4.7	17	2	V	0.5	4	4			45	EOL #9

**HUNTEC DTS:** Deep Tow  500J  1000J  Side Scan  50KHZ  100 KHZ  Sparker Option  Fish Posit. Opt.  Altim. Opt.

**OTHER EQUIP:** Sparker  Air Gun  Sounder  Side Scan

**CONSOLE SETTINGS:** ASP Gain  Fixed  Spr.  Preset  Adap.  Pressure  Heave  Normal

**BMC Mode**

**PROFILER GRAPHICS:** Sweep (msec.)  INT.  EXT.  Hydrophone type  Filter - Hz High  -Hz Low  Print

**TAPE SETTINGS:** CH#1  CH#2  CH#3  CH#4  CH#5  CH#6  CH#7  CH#8

Tape Speed

**OPERATORS:** \_\_\_\_\_

10

PROJECT C135-01 DATE Oct 15/97  
 VESSEL HW 97-058 CLIENT NRL - PTL  
 LOCATION LEWISBURG SHEET NO. 10

# WATCHKEEPERS LOG



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3P5

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS
JULIAN DAY	TIME GMT	LINE #	TAPE #	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG GAIN	DELTA SCALE	RANGE INITIAL	GAIN SETTINGS MAX SLOPE	
288	0701	9	3-8	5.1	16	2	✓	.5	4	4	50	WD		
288	0709	15	3-8	5.5	16	2	✓	.5	4	4	50	49		
288	0730	15	3-8	4.9	33	2	✓	.5	4	4	100	58	SOL #15	
288	0800	15	3-9	4.9	33	2	✓	.5	4	4	100	97		
288	0805	15	3-9	4.9	33	2	✓	.5	4	4	100	48	EOL #15	
288	0816	16	3-9	4.9	36	2	✓	.5	4	4	100	99	EOL #15	
288	0830	16	3-9	4.9	35	2	✓	.5	4	4	100	102	SOL #16	
288	0900	16	3-9	4.9	38	2	✓	.5	4	4	100	93		
288	0914	16	3-10	4.9	38	2	✓	.5	4	4	100	59	EOL #16	
288	0925	17	3-10	4.7	20	2	✓	.5	4	4	75	67	EOL #16	
288	0930	17	3-10	4.7	17	2	✓	.5	4	4	50	53	SOL #17	
288	1000	17	3-10	4.4	17	2	✓	.5	4	4	50	51		
288	1039	17	3-10	4.6	17	2	✓	.5	4	4	100	95		
288	1039	17	3-10	4.6	17	2	✓	.5	4	4	100	103	EOL #17	

**HUNTECDTS:**  
 Deep Tow 500J  
 1000J  
 Side Scans 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain: INT Fixed  Spr.   
 Preset   
 BMC Mode:  Pressure   
 Heave   
 Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.): EXT  
 Hydrophone Type: INT 125  
 Filter - Hz High: EXT 125  
 -Hz Low: EXT 125  
 Print: EXT 125

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

11

PROJECT C135-02 DATE Oct 15/97  
 VESSEL HN97-058 CLIENT NRC - ATL  
 LOCATION LEWISBURG SHEET NO. 11

# WATCHKEEPERS LOG



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P. O. Box 686, Dartmouth, Nova Scotia, Canada B2Y 3T9

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS				
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG. GAIN	DELY. IN		RANGE SCALE	GAIN SETTINGS INITIAL	MAX SLOPE	WD.
2888	2010							3-4	✓	0.5	3	3	3	50				54	Deploy gear
	2080			4-1		082	5.5	23	3-4	✓	0.5	3	3	50				78	IN TRANSIT TO LINE SOL #22
	2103	SOL	32	4-2		256	4.4	26	3-4	✓	0.5	3	3	50				70	SOL #22
	2130		32	4-2		255	4.1	30	3-4	✓	0.5	3	3	50				59	
	2200		32	4-2		258	5.1	36	3-4	✓	0.5	3	3	50				39	
	2217	EOL	32	4-2						✓	0.5	3	3	25				20	EOL #32
	2230	SOL	33	4-3		57	5.1	6	3	✓	0.5	3	3	25				20	SOL #33
	2316		33	4-3		074	4.1	30	3	✓	0.5	3	3	25				58	
	2344	FOL	33	4-3		66	4.8	30	3	✓	0.5	3	3	25				66	EOL #33
	2357	SOL	34	4-4		253	5.4	29	3	✓	0.5	3	3	25				62	SOL #34
2889	0030		34	4-4		258	5.3	28	3	✓	0.5	3	3	25				56	
	0106	EOL	34	4-4		253	5.5	11	3	✓	0.5	3	3	25				18	EOL #34
	0115	SOL	36	4-6		59	4.7	6	3	✓	0.5	3	3	25				22	SOL #36
	0134		36	4-6		75	5.6	17	3	✓	0.5	3	3	25				40	
	0200		36	4-6		80	4.8	26	3	✓	0.5	3	3	25				51	

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scans 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 3-5 KHZ

**CONSOLE SETTINGS:**  
 ASP Gain: INT Fixed Spr. Preset  
 BMC Mode: INT Pressure Heave Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.): EXT  
 Hydrophone type: INT LAS  
 Filter - Hz High: EXT 3500  
 Filter - Hz Low: EXT 300  
 Print: EXT 3500

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_





OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

PROJECT C135-02 DATE Oct 15-97  
VESSEL HN 92-058 CLIENT NLC - ATL  
LOCATION Lockhart SHEET NO. 12

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS				
JULIAN DAY	TIME GMT	LINE #	TAPE #	TAPE FOOT	HOG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG. GAIN	DELAY		RANGE SCALE	INITIAL	MAX SLOPE	ASU PA
289	0232	EOL 18	46		74	5.7	30	3	✓	0.5	3	3	25				57	EOL #36
	0300		46		158	4.9	31	3	✓	0.5	3	3	25				48	IN TRANSIT TO LINE 18
	0318	SOL 18	47		187	5.2	29	3	✓	0.5	3	3	25				49	SOL #48
	0400	18	48		192	5.3	36	3	✓	0.5	3	3	25				89	
	0412	EOL 18	48		195	5.1	39	3	✓	0.5	3	3	25				101	
	0426	SOL 19	49		014	4.1	43	3	✓	0.5	3	3	100				97	SOL #19
	0500	19	49		016	5.3	42	3	✓	0.5	3	3	100				92	
	0520	19	49				20	3	✓	0.5	3	3	50				43	EOL #19
	0540	SOL 20	4-10		191	4.9	19	3	✓	0.5	3	3	50				35	SOL #20
	0600	20	4-10		198	5.1	31	3	✓	0.5	3	3	100				97	
	0636	EOL 20	4-11		206	5.1	42	3	✓	0.5	3	3	100				107	EOL #20
	0650	SOL 21	4-11		018	4.5	47	3	✓	0.5	3	3	100				107	SOL #21
	0706	21	4-11		020	5.4	45	3	✓	0.5	3	3	100				92	
	0730	21	4-11		018	5.5	46	3	✓	0.5	3	3	100				85	
	0742	EOL 21	4-11		012	5.3	18	3	✓	0.5	3	3	25				32	

**HUNTECOTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 50 KHZ

**CONSOLE SETTINGS:**  
 ASP Gain: 1.1  
 Fixed  Sr.  Preset   
 BMC Mode:  Adap.  Pressure  Heave  Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.): 1.5  
 Hydrophone Type: LC10  
 Filter - Hz High: 3.500  
 Filter - Hz Low: 2000  
 Print: EXT

**TAPE SETTINGS:**  
 CH#1: --- CH#5: ---  
 CH#2: --- CH#6: ---  
 CH#3: --- CH#7: ---  
 CH#4: --- CH#8: ---  
 Tape Speed: ---

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
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OFFSHORE TECHNICAL SERVICES  
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# WATCHKEEPERS LOG

PROJECT C135-02 DATE Nov 15 1977  
VESSEL HN 97-058 CLIENT NRCC - P11  
LOCATION Louisburg SHEET NO. 12

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS			
JULIAN DAY	TIME GMT	DATA LOG	LINE#	TAPE#	FOOT	HOG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	RANGE SCALE		GAIN INITIAL	GAIN MAX	SLOPE
289	7:56	SOL	22	4-11		196	5.3	18	3	✓	0.5	3	3	38			SOL # 22
289	8:30		22	4-11		192	4.9	38	3	✓	0.5	3	3	93			
289	8:52	EOL	22	4-12		203	4.9	38	3	✓	0.5	3	3	113			FOL # 22
289	9:07	SOL	23	4-12		016	5.7	37	3	✓	0.5	3	3	111			SOL # 23
289	9:30		23	4-12		018	5.3	39	3	✓	0.5	3	3	101			
289	9:55	EOL	23	4-13		002	5.3	18	3	✓	0.5	3	3	43			FOL # 23
289	10:05	SOL	24	4-13		196	4.6	15	3	✓	0.5	3	3	53			SOL # 24
289	10:30	EOL	24	4-13		198	4.7	17	3	✓	0.5	3	3	103			EOL # 24

**HUNTEC OTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 5.5 kHz

**CONSOLE SETTINGS:**  
 ASP Gain \_\_\_\_\_  
 BMC Mode \_\_\_\_\_  
 IMT \_\_\_\_\_  
 Fixed \_\_\_\_\_  
 Spr. \_\_\_\_\_  
 Preset \_\_\_\_\_  
 Adap. \_\_\_\_\_  
 Pressure \_\_\_\_\_  
 Heave \_\_\_\_\_  
 Normal \_\_\_\_\_

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - Hz High \_\_\_\_\_  
 -Hz Low \_\_\_\_\_  
 Print \_\_\_\_\_

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**

18.7.25  
18.7.25

PROJECT 6608 285-02 DATE Oct 17/97  
VESSEL AN 97-058 CLIENT NRC - ATL  
LOCATION CHEVICAMP SHEET NO. 14

# WATCHKEEPERS 97-098



OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
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DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS		
JULIAN DAY	TIME GMT	LINE #	TAPE #	HDG. FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE STATE	FIRE RATE	PCU KV	PROC. GAIN	DELR. MS	RANGE SCALE		GAIN SETTINGS	W.D. M
290	0220	50	4-15			22	3	✓	0.5	3	3	100			108	Deploy GEAR SOL #50
	0233	50	4-15			40	3	✓	0.5	4	4	100			103	
290	0258	50	4-15	187	5.0	43	3	✓	0.5	4	4	100			94	
	0415	50	4-15	188	4.8	44	2	✓	0.5	4	4	100			120	fix
	0425	50	4-16	180	5.1	60	2	✓	0.5	4	4	150			154	EOL #50 / Sol #51
	0500	51	4-16	179	5.4	37	2	✓	0.5	4	4	100			108	
	0540	51	4-16	182	5.3	37	2	✓	0.5	4	4	100			115	
	0600	51	4-17	178	5.7	15	2	✓	0.5	4	4	50			54	new file
	0630	51	4-18	186	4.6	15	2	✓	0.5	4	4	50			39	EOL #51
	0633	50	4-18	057	5.1	15	2	✓	0.5	4	4	50			25	SOL #37
	0637	37				15	2	✓	0.5	3	3	25			29	Reduce Power 3KV
	0700	37	4-19	033	5.0	15	2	✓	0.5	3	3	25			27	
	0730	37	4-19	031	4.8	15	2	✓	0.5	3	3	25			38	
	0800	37	4-20	033	4.9	20	2	✓	0.5	3	3	25			41.4	

<b>HUNTEC DTS:</b> <input checked="" type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Post. Opt. <input type="checkbox"/> Altim. Opt.	<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input checked="" type="checkbox"/> Side Scan <input type="checkbox"/> 2500P	<b>CONSOLE SETTINGS:</b> ASP Gain: <u>INT</u> BMC Mode: <input checked="" type="checkbox"/> Fixed Spr. <input type="checkbox"/> Preset Adap. <input type="checkbox"/> Pressure Heave Normal	<b>PROFILER GRAPHICS:</b> Sweep (msec): <u>125</u> Hydrophone type: <u>1510</u> Filter - Hz High: <u>6000</u> Filter - Hz Low: <u>2000</u> Print: <input checked="" type="checkbox"/>	<b>TAPE SETTINGS:</b> CH#1: <u>EXT</u> CH#2: <u>125</u> CH#3: <u>MESH</u> CH#4: <u>3500</u> CH#5: <u>1000</u> CH#6: <u>2000</u> CH#7: <u>2000</u> CH#8: <u>2000</u> Tape Speed: <u>2.5</u>	<b>OPERATORS:</b> _____ _____ _____
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# WATCHKEEPERS LOG

PROJECT C135-02 DATE Oct 17/97  
 VESSEL HN 97-058 CLIENT MRC - ATL  
 LOCATION Chert Camp SHEET NO. 15

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS					
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HOG	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG. GAIN		RANGE SCALE	INITIAL	MAX	SCOPE	W-D
290	0830		37	4-20		36	5.2	20	2	✓	0.5	3	3					41.4	
	0930		37	4-21		36	5.2	21	2	✓	0.5	3	3					43.9	SOE # 21
	0930		37	4-21		34	5.2	21	2	✓	0.5	3	3					46.3	AGE DIG
	0935		37	4-22		36	5.2	20	2	✓	0.5	3	3					50.1	EOL # 37
	0944		38	4-22		216	4.4	22	2	✓	0.5	3	3					54.5	SOL # 38
	1000		38	4-22		216	3.8	22	2	✓	0.5	3	3					50.4	
	1030		38	4-22		213	4.2	18	2	✓	0.5	3	3					48.0	
	1000		38	4-22		213	3.4	18	2	✓	0.5	3	3					50	
	1100		38	4-24		214	3.3	19	2	✓	0.5	3	3					49	EOL # 38
	1110		38	4-24		216	3.3	19	2	✓	0.5	3	3					50	

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounding  
 Side Scan  
 3.5.0.0.0.E

**CONSOLE SETTINGS:**  
 ASP Gain: INT \_\_\_\_\_ Fixed EXT ✓  
 Spr: Preset \_\_\_\_\_  
 BMC Mode: Adapt. \_\_\_\_\_  
 Pressure  
 Heave  
 Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.): INT 125  
 Hydrophone type: LCL  
 Filter - Hz High: 6000  
 Filter - Hz Low: 2000  
 Print: 6 x 6

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P O Box 696, Dartmouth, Nova Scotia, Canada B2Y 3J9

# WATCHKEEPERS LOG

PROJECT CURS-04 DATE Oct 17/97  
 VESSEL FIN 97-058 CLIENT NRC - ATL  
 LOCATION CHETICAMP SHEET NO. 16

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS					
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG GAIN		DELAY	RANGE SCALE	INITIAL MAX SLOPE	END	
296	1950				H			14	2 1/2	✓	0.5	3	3	25			31	Deploy Gear	
	2010	SOL	52	4	25	23	5.1	8	2 1/2	✓	0.5	3	3	25			20	SOL # 52	
	2015																		FOR TRILLEGAL PROBLEMS
	2057	EOL	52	4	25	238	3.9		2.5	✓	0.5	3	3	25				EOL # 52	
	2054	SOL	53	4	26	292	3.8		2.5	✓	0.5	3	3	25				SOL # 53	
	2130		53	4	26	278	4.6	36	2 1/2	✓	0.5	3	3	75					
	2050		53	4	26	287	5.1	39	2 1/2	✓	0.5	3	3	100				76 fix	
	2230		53	4	26	240	4.4	30	2 1/2	✓	0.5	3	3	75				68 fix	
	2300		53	4	26	285	4.5	30	2 1/2	✓	0.5	3	3	75				66	
	2345	EOL	53	4	26	280	4.4	29	2 1/2	✓	0.5	3	3	75				67 EOL # 53	
	2348	SOL	54	5	1	320	3.6	30	2 1/2	✓	0.5	3	3	75				67 SOL # 54	
	0030		54	5	1	316	4.5	29	2 1/2	✓	0.5	3	3	75				67	
	0100		54	5	2	310	4.5	29	2 1/2	✓	0.5	3	3	75				64	
	0130		54	5	2	317	4.8	29	2 1/2	✓	0.5	3	3	75				60	
	0200		54	5	2	317	4.8	27	2 1/2	✓	0.5	3	3	50				55	

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scans 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain: INT  
 BMC Mode:  Fixed  Spr.  Preset  Adsp.  Pressure  Heave  Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.): EST  
 Hydrophone type: EST  
 Filter - Hz High: EST  
 Filter - Hz Low: EST  
 Print: EST

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**



OFFSHORE TECHNICAL SERVICES  
 4100 Building, Bedford Institute of Oceanography  
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# WATCHKEEPERS LOG HUDSON 97-058

PROJECT CL35-02 DATE 17 Oct 97  
 VESSEL HN 97-058 CLIENT MRC-ATI  
 LOCATION CHELTICAMP SHEET NO. 17

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL				PROFILER				SIDE SCAN				COMMENTS	
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV.	PROC. GAIN	RANGE SCALE	INITIAL	MAX	SLOPE		DEBY
291	0231	EOL	54	5	2	315	5.1	26	2 1/2	✓	0.5	3	3	71					EOL #54
	0247	SOL	55	5	3	168	4.9	26	2 1/2	✓	0.5	3	3	75					SOL # 55
291	0304		55	5	3	176	4.9	20	2 1/2	✓	0.5	3	3	58					50
291	0334		55	5	3	177	5.1	20	2 1/2	✓	0.5	3	3	58					50
291	0401		55	5	3	177	5.1	19	2 1/2	✓	0.5	3	3	69					50
291	0414	EOL	55	5	4	136	4.7	20	2 1/2	✓	0.5	3	3	74					EOL # 55
291	0413	SOL	56	5	4	090	4.8	20	2 1/2	✓	0.5	3	3	72					SOL # 56
291	0442		56	5	4	97	5.3	20	2 1/2	✓	0.5	3	3	67					50
291	0518		56	5	4	95	5.2	20	2 1/2	✓	0.5	3	3	64					50
291	0547		56	5	4	94	4.9	33	2 1/2	✓	0.5	3	3	64					50
291	0603		56	5	5	90	4.9	33	2 1/2	✓	0.5	3	3	32					50
291	0630		56	5	5	90	5.1	22	2 1/2	✓	0.5	3	3	32					50
291	0639	EOL/SOL	57	5	6	672	4.7	24	2 1/2	✓	0.5	3	3	69					EOL / SOL # 57
291	0643		57	5	6	80	5.3	34	2 1/2	✓	0.5	3	3	64					50
291	0700		57	5	8	80	4.9	34	2 1/2	✓	0.5	3	3	71					50

HUNTEC DTS: <input type="checkbox"/> 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.		OTHER EQUIP: <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan		CONSOLE SETTINGS: ASP Gain <input type="checkbox"/> Fixed <input checked="" type="checkbox"/> EVI <input type="checkbox"/> Spr. <input type="checkbox"/> Preset <input checked="" type="checkbox"/> Adap. <input type="checkbox"/> Pressure <input type="checkbox"/> Heave <input type="checkbox"/> Normal		PROFILER GRAPHICS: Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ -Hz Low _____ Print _____		TAPE SETTINGS: CH#1 _____ CH#5 _____ CH#2 _____ CH#6 _____ CH#3 _____ CH#7 _____ CH#4 _____ CH#8 _____ Tape Speed _____		OPERATORS: _____ _____ _____	
--	--	--	--	--	--	--	--	--	--	------------------------------------	--



OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography,  
P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

## Hudson 97-059

PROJECT C135 - C2 DATE 18 Oct 1997  
VESSEL HN 97-058 CLIENT NRC - Atl.  
LOCATION Cheticamp SHEET NO. 18

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL			PROFILER				SIDE SCAN			COMMENTS
JULIAN DAY	TIME GMT	LINE #	TAPE #	FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	RANGE SCALE	GAIN INITIAL	GAIN MAX	SLOPE	
291	0730	57	5	8	76	5.3	22	2 1/2	✓	0.5	3	94			75	
291	0800	57	5	9	77	5.0	45	2 1/2	✓	0.5	3	102			125	
291	0831	57	5	9	82	5.3	28	2 1/2	✓	0.5	3	84			75	
291	0900	57	5	9	77	5.5	46	2 1/2	✓	0.5	3	108			12.5	
291	0928	EOL	57	5	9	74	18	2 1/2	✓	0.5	3	49			50	
291	0934	SOL	38	5	9	221	49	17	2 1/2	✓	3	48			50	
291	1000		38	5	9	219	52	17	2 1/2	✓	3	44			50	
291	1020		38	5	9	211	51	17	2	✓	3	37			50	
291	1058		38	5	9	214	50	18	2	✓	3	30			50	
291	2000															
	2006	SOL	40	5	10		21	2	✓	0.5	3	49			50	
	2015															
	2100		40	5	10		53	0.30	✓	0.5	3	44			50	

**HUNTEC DTS:**  
 Deep Tow 500J  
 Side Scan 500KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altm. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain INI Fixed Spr. EXT  
 Preset Adap.  
 BMC Mode Pressure  
Heave  
Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - Hz High \_\_\_\_\_  
 -Hz Low \_\_\_\_\_  
 Print \_\_\_\_\_

**INT.** \_\_\_\_\_ **EXT.** \_\_\_\_\_  
 + - + - + -

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Deploy gear  
SOL # 141



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P. O. Box 686, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

## HUDSON 97-058

PROJECT C.135-03 DATE 18 Oct 97  
 VESSEL IN 97-058 CLIENT NRC - ALC  
 LOCATION CHETICAMP SHEET NO. 19

DATE/TIME	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS	
	JULIAN DAY	TIME GMT	TAPE #	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	RANGE SCALE	INITIAL	MAX		SLOPE
291	21:30	11	5	4.9	17	2	✓	0.5	3	48			50	Day
	22:00	11	5	5.0	30	2	✓	0.5	3	50			50	
	22:30	12	5	5.1	30	2	✓	0.5	3	57			50	
	23:00	12	5	5.2	30	2	✓	0.5	3	69			50	
	23:16	12	5	5.7	30	2	✓	0.5	3	83			50	EOL # 40
	23:26	13	5	4.2	30	2	✓	0.5	3	95			50	SOL # 41
292	00:00	13	5	4.8	29	2	✓	0.5	3	79			75	
	00:30	14	5	4.7	22	2	✓	0.5	3	60			50	
	01:00	14	5	4.4	22	2	✓	0.5	3	52			50	
	01:30	15	5	4.6	20	2	✓	0.5	3	50			50	
	02:00	15	5	4.7	20	2	✓	0.5	3	48			50	
	02:30	15	5	3.4	17	2	✓	0.5	3	58			50	EOL # 41
	02:46	15	5	4.1	16	2	✓	0.5	3	47			50	SOL # 42
	03:00	16	5			2	✓	0.5	3				50	<del>SOL # 42</del>

<b>HUNTEC DTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparkler Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altm. Opt.		<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparkler <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan		<b>CONSOLE SETTINGS:</b> ASP Gain _____ Spr. _____ Preset _____ Adap. _____ BMC Mode _____ Pressure _____ Heave _____ Normal _____		<b>PROFILER GRAPHICS:</b> Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ Print _____		<b>INT.</b> _____ <b>EXT.</b> _____ + ± - + ± -		<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____		<b>OPERATORS:</b> _____ _____ _____ _____	
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OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
P O Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

## MUSON 07-058

PROJECT C.LRS-02 DATE 19/10/97  
VESSEL HN97-058 CLIENT NRC-ATL  
LOCATION CHETICAMP SHEETNO. 20

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL				PROFILER				SIDE SCAN				COMMENTS	
JULIAN DAY	TIME GMT	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	DEMT. MS	RANGE SCALE	GAIN SETTINGS INITIAL	MAX	SLOPE		U-D
292	0330	43	5	16	31	4.9	16	2	✓	0.5	3	3	50					51	
292	0400	43	5	16	36	5.3	16	2	✓	0.5	3	3	50					53	
292	0430	43	5	17	32	5.4	16	2	✓	0.5	4	4	50					61	
292	0504	43	5	17	37	5.2	31	2	✓	0.5	4	4	50					88	BEY 100MSD
292	0530	43	5	17	44	5.3	31	2	✓	0.5	4	4	100					99	
292	0600	43	5	17	111	5.5	38	2	✓	0.5	4	4	100					111	EOL 43, SOL 45
292	0600	45	5	17		5.3	37	2	✓	0.5	4	4	100					124	SOL 45
292	0630	45	5	17		5.4	36	2	✓	0.5	4	4	100					114	
292	0700	45	6	17		5.4	37	2	✓	0.5	4	4	100					106	FLX
292	0706	45	5	20	214	5.9	35	2	✓	0.5	4	4	100					106	FLX
292	0730	45	5	20	215	4.3	38	2	✓	0.5	4	4	100					92	
292	0800	45	5	20	215	4.4	38	2	✓	0.5	4	4	75					72	
292	0830	45	5	20	214	4.7	38	2	✓	0.5	4	4	75					62	
292	0900	45	5	21	211	4.4	31	2	✓	0.5	4	4	50					61	
292	0930	EOL	45	21	214	4.5	31	2	✓	0.5	4	4	50					57	EOL # 45

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Post. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 1.5 KHZ DSE

**CONSOLE SETTINGS:**  
 ASP Gain \_\_\_\_\_  
 INT \_\_\_\_\_  
 Fixed Spr. \_\_\_\_\_  
 Preset \_\_\_\_\_  
 Adap. \_\_\_\_\_  
 Pressure  
 Heave  
 Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - Hz High \_\_\_\_\_  
 -Hz Low \_\_\_\_\_

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_ CH#5 \_\_\_\_\_  
 CH#2 \_\_\_\_\_ CH#6 \_\_\_\_\_  
 CH#3 \_\_\_\_\_ CH#7 \_\_\_\_\_  
 CH#4 \_\_\_\_\_ CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 EMILY / MARY  
 KEAL / NEUF

PROJECT C135-02 DATE 19/10/97  
 VESSEL HN97-058 CLIENT NRC-ATL  
 LOCATION ChartCamp SHEET NO. 21

# WATCHKEEPERS LOG

**GEOFORCE CONSULTANTS**  
 OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS				
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HOG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	RCU PV	PROC GAIN		RANGE SCALE	GAIN SETTINGS	MAX SLOPE	MIN SLOPE
292	09:49	SOL	47	5	21	21	6.0	31	2	✓	0.5	3	3	50	61			SOL # 47
292	10:00		47	5	21	35	6.3	30	2	✓	0.5	3	3	50	80			
292	10:23	EOL	47	5	22	33	6.1	18	2	✓	0.5	3	3	100	94			EOL # 47
292	10:32	SOL	49	5	22	27	6.3	40	2	✓	0.5	3	3	100	126			SOL # 49
292	11:00		49	5	22	34	6.4	41	2	✓	0.5	3	3	105	117			
292	11:30		49	5	23	32	6.1	42	2	✓	0.5	3	3	125	118			
292	12:00		49	5	23	35	6.0	42	2	✓	0.5	3	3	125	122			
292	12:15		49	5	24	34	5.9	42	2	✓	0.5	3	3	125	120			EOL # 49
292	22:20			6	1	183	3.9	18	2	✓	0.5	3	3	50	60			DEPLOY GEAR
292	22:30	SOL	58	6	1	183	4.2	18	2	✓	0.5	3	3	50	60			SOL # 58
292	22:59		58	6	1	182	4.9	14	2	✓	0.5	3	3	150	56			
292	23:37		58	6	1	184	5.3	14	2	✓	0.5	3	3	150	48			
292	24:03		58	6	2	183	5.1	17	2	✓	0.5	3	3	150	45			

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 5 kHz  
 JRE

**CONSOLE SETTINGS:**  
 ASP Gain INT  
 Fixed Spr. EXT  
 Preset Adap. ✓  
 BMC Mode Pressure  
 Heave Normal

**PROFILER GRAPHICS:**  
 Sweep (msec.) 125  
 Hydrophone type 4C12  
 Filter - Hz High 6000  
 Filter - Hz Low 2000  
 Print ⊕

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
Mary Ken  
Catrace

WEN

PROJECT C135-02 DATE 19/10/97  
 VESSEL HM57-05X CLIENT NRC-AL1  
 LOCATION \_\_\_\_\_ SHEET NO. 22

# WATCHKEEPERS LOG

## HUDSON 97-058

**GEOFORCE CONSULTANTS**  
 OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

DATE	TIME GMT	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS		
		LINE #	TAPE #	TAPE FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	RANGE SCALE	INITIAL		MAX	SLOPE
278	02:33	58	6	2	5.2	17	2	V	0.5	3	3				42	-
298	00:56	58	6	2	5.3	8	2	V	0.5	3	3				26	EOL # 58
293	01:04	59	6	3	5.3	8	2	V	0.5	3	3				22	SOL # 59
293	01:19	59	6	3	5.2	10	2	V	0.5	3	3				29	EOL # 59
293	01:20	60	6	3	5.2	10	2	V	0.5	3	3				28	SOL # 60
293	01:50	60	6	3	5.4	17	2	V	0.5	3	3				44	-
293	02:00	60	6	3	5.4	17	2	V	0.5	3	3				45	-
293	02:47	60	6	4	5.2	17	2	V	0.5	3	3				48	-
293	03:07	60	6	4	5.1	17	2	V	0.5	3	3				49	-
293	03:00	60	6	4	5.1	17	2	V	0.5	3	3				47	-
293	04:01	60	6	5	5.1	17	2	V	0.5	3	3				46	-
293	04:15	60	6	5	3.8	18	2	V	0.5	3	3				45	EOL # 60
293	04:21	61	6	6	5.3	17	2	V	0.5	3	3				46	SOL # 60
293	04:45	61	6	7	4.3	17	2	V	0.5	3	3				45	EOL # 61
293	05:15	62	6	7	5.5	17	2	V	0.5	3	3				48	SOL # 62

<b>HUNTECDTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.	<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	<b>CONSOLE SETTINGS:</b> ASP Gain _____ BMC Mode _____ Fixed Spr. _____ Preset Adap. _____ Pressure Heave _____ Normal _____	<b>PROFILER GRAPHICS:</b> Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ Print _____ + Hz Low _____	<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____	<b>OPERATORS:</b> _____ _____ _____
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OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT C135-02 DATE 20/10/97  
 VESSEL HM 97-058 CLIENT MRC ATL  
 LOCATION \_\_\_\_\_ SHEET NO. 23

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL				PROFILER				SIDE SCAN				COMMENTS
JULIAN DAY	TIME GMT	DATA LOG	LINE#	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE BM	FIRE RATE	PCU KV	PROC. GAIN	RANGE SCALE	GAIN SETTINGS INITIAL	MAX	SLOPE	
293	05:46		61	6	7	102	5.1	17	2	✓	0.5	3	3	125			49	
293	06:16		62	6	7	99	5.3	17	2	✓	0.5	3	3	125			49	
293	07:00		62	6	8	100	4.9	17	2	✓	0.5	3	3	25			45	
293	07:30		62	6	8	99	5.2	17	2	✓	0.5	3	3	25			41	
293	07:52	EOL	62	6	9	81	4.9	10	2	✓	0.5	3	3	25			22	EOL #62
293	07:56	SOL	63	6	9	25	5.3	5	2	✓	0.5	3	3	25			27	SOL #67
293	08:07	EOL	63	6	9	25	5.1	18	2	✓	0.5	3	3	25			37	EOL #63
293	08:09	SOL	64	6	9	310	4.1	15	2	✓	0.5	3	3	25			38	SOL #64
293	08:30		64	6	9	282	4.4	15	2	✓	0.5	3	3	25			42	
293	09:00		64	6	9	282	4.7	18	2	✓	0.5	3	3	25			45	
293	09:30		64	6	9	284	4.8	18	2	✓	0.5	3	3	25			48	
293	09:48	EOL	67	6	10	279	4.9	19	2	✓	0.5	3	3	25			49	EOL #64
293	09:52	SOL	65	6	10	17	5.3	18	2	✓	0.5	3	3	25			50	SOL #65
293	09:59	EOL	65	6	11	11	4.4	19	2	✓	0.5	3	3	25			50	EOL #65
293	10:04	SOL	66	6	11	98	4.3	18	2	✓	0.5	3	3	25			50	SOL #66

HUNTEC DTS:	OTHER EQUIP:	CONSOLE SETTINGS:	PROFILER GRAPHICS:	TAPE SETTINGS:	OPERATORS:
<input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.	<input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	ASP Gain _____ Fixed Spr. _____ Preset _____ Adap. _____ Pressure _____ Heave _____ Normal _____ BMC Mode _____	Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ -Hz Low _____ Print _____	CHM1 _____ CHM2 _____ CHM3 _____ CHM4 _____ CHM5 _____ CHM6 _____ CHM7 _____ CHM8 _____ Tape Speed _____	OPERATORS: _____ _____ _____



OFFSHORE TECHNICAL SERVICES  
 4900 Building, Bedford Institute of Oceanography  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT CIS-02 DATE 20/10/97  
 VESSEL HM 97-058 CLIENT MRC ATL  
 LOCATION \_\_\_\_\_ SHEET NO. 23

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS	
JULIAN DAY	TIME GMT	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROG. GAIN	RANGE SCALE		GAIN SETTINGS INITIAL MAX SLOPE
293	05:46	62	6	7	102	5.1	17	2	✓	0.5	3	3			49
293	06:16	62	6	7	99	5.3	17	2	✓	0.5	3	3			49
293	07:00	62	6	8	100	4.9	17	2	✓	0.5	3	3			45
293	07:30	62	6	8	99	5.2	17	2	✓	0.5	3	3			41
293	07:52	604	6	9	81	4.9	10	2	✓	0.5	3	3			22
293	07:56	506	6	9	25	5.3	5	2	✓	0.5	3	3			27
293	08:07	604	6	9	23	5.1	18	2	✓	0.5	3	3			37
293	08:09	506	6	9	310	4.1	15	2	✓	0.5	3	3			38
293	08:30	604	6	9	282	4.4	15	2	✓	0.5	3	3			42
293	09:00	604	6	9	282	4.7	18	2	✓	0.5	3	3			45
293	09:30	604	6	9	284	4.8	18	2	✓	0.5	3	3			48
293	09:48	606	6	10	279	4.9	19	2	✓	0.5	3	3			49
293	09:52	506	6	10	17	5.3	18	2	✓	0.5	3	3			50
293	09:59	606	6	11	11	4.4	19	2	✓	0.5	3	3			50
293	10:04	506	6	11	98	4.3	18	2	✓	0.5	3	3			50

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Altim. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan

**CONSOLE SETTINGS:**  
 ASP Gain \_\_\_\_\_  
 Fixed \_\_\_\_\_  
 Spr. \_\_\_\_\_  
 Preset \_\_\_\_\_  
 Adap. \_\_\_\_\_  
 Pressure \_\_\_\_\_  
 Heave \_\_\_\_\_  
 Normal \_\_\_\_\_  
 BMC Mode \_\_\_\_\_

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - Hz High \_\_\_\_\_  
 -Hz Low \_\_\_\_\_  
 Print \_\_\_\_\_

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



OFFSHORE TECHNICAL SERVICES  
 Anglo Building Bedford Institute of Oceanography  
 P. O. Box 698, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT 2135-02 DATE 20/10/197  
 VESSEL HN 97-058 CLIENT NRG-ATL  
 LOCATION \_\_\_\_\_ SHEET NO. 23

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL				PROFILER				SIDE SCAN			COMMENTS		
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD	FISH DEPTH	SEA STATE	SOURCE BM	SP	FINE PATE	PCU KV	PROC. GAIN	RANGE SCALE	INITIAL	MAX SLOPE	W/D	
293	05:46		62	6	7	102	5.1	17	2	✓		0.5	3	3	125			49	
293	06:16		62	6	7	99	5.3	17	2	✓		0.5	3	3	125			49	
293	07:00		62	6	8	100	4.9	17	2	✓		0.5	3	3	25			45	
293	07:30		62	6	8	99	5.2	17	2	✓		0.5	3	3	25			41	
293	07:52	EOL	607	6	9	81	4.9	10	2	✓		0.5	3	3	25			22	EOL #62
293	07:56	EOL	63	6	9	95	5.3	5	2	✓		0.5	3	3	25			27	EOL #67
293	08:07	EOL	63	6	9	93	5.1	18	2	✓		0.5	3	3	25			37	EOL #63
293	08:09	EOL	64	6	9	310	4.1	15	2	✓		0.5	3	3	25			35	EOL #64
293	08:30		64	6	9	282	4.4	15	2	✓		0.5	3	3	25			42	
293	09:00		64	6	9	282	4.7	18	2	✓		0.5	3	3	25			45	
293	09:30		64	6	9	284	4.8	18	2	✓		0.5	3	3	25			48	
293	09:48	EOL	64	6	10	279	4.9	19	2	✓		0.5	3	3	25			49	EOL #64
293	09:52	EOL	65	6	10	53	18	2	✓			0.5	3	3	25			50	EOL #65
293	09:59	EOL	65	6	11	44	19	2	✓			0.5	3	3	25			50	EOL #65
293	11:04	EOL	66	6	11	98	4.3	18	2	✓		0.5	3	3	25			50	EOL #66

HUNTEC DTS:  Deep Tow 500J  1000J  Side Scan 50KHZ  100 KHZ  Sparker Option  Fish Posit. Opt.  Altim. Opt.

OTHER EQUIP:  Sparker  Air Gun  Sounder  Side Scan

CONSOLE SETTINGS: ASP Gain \_\_\_\_\_ Fixed \_\_\_\_\_ Spr. \_\_\_\_\_ Preset \_\_\_\_\_ Adap. \_\_\_\_\_ Pressure \_\_\_\_\_ Heave \_\_\_\_\_ Normal \_\_\_\_\_

PROFILER GRAPHICS: Sweep (msec.) \_\_\_\_\_ INT. \_\_\_\_\_ EXT. \_\_\_\_\_ Hydrophone type \_\_\_\_\_ Filter - Hz High \_\_\_\_\_ -Hz Low \_\_\_\_\_

TAPE SETTINGS: CH#1 \_\_\_\_\_ CH#2 \_\_\_\_\_ CH#3 \_\_\_\_\_ CH#4 \_\_\_\_\_ CH#5 \_\_\_\_\_ CH#6 \_\_\_\_\_ CH#7 \_\_\_\_\_ CH#8 \_\_\_\_\_ Tape Speed \_\_\_\_\_

OPERATORS: \_\_\_\_\_



GeoForce  
CONSULTANTS  
OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
P. O. Box 596, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WAJUSON 97-058 LOG

PROJECT C 135-02 DATE 20/10/97  
VESSEL HUJ 97-058 CLIENT NRC - ATL  
LOCATION 24 SHEET NO. 24

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL			PROFILER				SIDE SCAN			COMMENTS			
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN	DELAY (ms)	RANGE SCALE	INITIAL		MAX	SLOPE	W.D. (m)
293	10:33		66	6-11		103	5.6	2	✓	0.5	3	3	25					49	
293	11:00		66	6-12		102	5.6	2	✓	1.5	3	3	25					45	
2	11:30		66																DTS ONLY Survey
	2210		67	69	14	300	3.8	3	✓	6.5	3	3	25					17	Deploy Gear
	2219		50L	67	6	330	4.7	3	✓	0.5	3	3	25					20	SOL # 67
	2254		50L	67	6	327	4.4	3	✓	0.5	3	3	25					17	EOL # 67
	2255		<del>50L</del>	67	6	310	4.7	3	✓	0.5	3	3	25					16	<del>SOL # 67</del>
	2214		50L	68	6	169	5.8	3	✓	0.5	3	3	25					16	SOL # 68
294	00:09		EOL	68	6	169	5.4	12	✓	0.5	3	3	25					26	EOL # 68 X Briggs Deep Tension Drift
	2350																		DTS operational Channel
																			No signal
295	0609																		recovered print for inspection

<b>HUNTEC DTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Allim. Opt.	<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	<b>CONSOLE SETTINGS:</b> ASP Gain <input type="checkbox"/> Fixed Spr. <input type="checkbox"/> Preset <input type="checkbox"/> Adap. BMC Mode <input type="checkbox"/> Pressure <input type="checkbox"/> Heave <input type="checkbox"/> Normal	<b>PROFILER GRAPHICS:</b> Sweep (msec.) <u>125</u> Hydrophone type <u>LCID</u> Filter - Hz High <u>5000</u> -Hz Low <u>3000</u> Print <u>EXT</u>	<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____	<b>OPERATORS:</b> _____ _____ _____
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OFFSHORE TECHNICAL SERVICES  
Argo Building, Bedford Institute of Oceanography  
P. O. Box 686, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

PROJECT C-135-02 DATE 21/10/97  
VESSEL HN97-058 CLIENT NRC - AT  
LOCATION SHEET NO. 25

JULIAN DAY	DATE/TIME GMT	DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS					
		DATA LOG	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	PCU KV	PROC. GAIN		DELAY	RANGE SCALE	INITIAL	MAX	SLOPE
294	0105		69	6	17	191	5.2	011	3	✓	0.5	3	3	25					Stream snagged by side
	0203		69	6	17	194	5.1	17	3	✓	0.5	3	3	25					Stream - replace streamer
	0210		69	6	18	-	4.9	17	3	✓	0.5	3	3	25					able to recover changed streamer (wagging around side near fork)
	0214		SOL	70	6	18	227	5.1	17	3	✓	0.5	3	25					FISH BACK IN WATER
294	0300		70	6	19	278	5.1	14	3	✓	0.5	3	3	25					
	0331		70	6	19	269	5.3	14	3	-	0.5	3	3	25					FOL #69
	0402		70	6	19	261.6	5.2	8	3	-	0.5	3	3	25					SOL #70
	0431		70	6	19	263.1	5.2	8	3	-	0.5	3	3	25					FOL #70 / SOL #71
	0500		70	6	19	267.5	5.4	8	3	✓	0.5	3	3	25					FOL #71 / SOL #72

<b>HUNTECDTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.	<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	<b>CONSOLE SETTINGS:</b> ASP Gain <input type="checkbox"/> Fixed Spr. <input type="checkbox"/> Preset <input type="checkbox"/> Adap. <input type="checkbox"/> BMC Mode <input type="checkbox"/> Pressure <input type="checkbox"/> Heave <input type="checkbox"/> Normal <input type="checkbox"/>	<b>PROFILER GRAPHICS:</b> Sweep (msec.) <input type="checkbox"/> Hydrophone type <input type="checkbox"/> Filter - Hz High <input type="checkbox"/> -Hz Low <input type="checkbox"/> Print <input type="checkbox"/>	<b>TAPE SETTINGS:</b> CH#1 <input type="checkbox"/> CH#2 <input type="checkbox"/> CH#3 <input type="checkbox"/> CH#4 <input type="checkbox"/> CH#5 <input type="checkbox"/> CH#6 <input type="checkbox"/> CH#7 <input type="checkbox"/> CH#8 <input type="checkbox"/> Tape Speed <input type="checkbox"/>	<b>OPERATORS:</b> _____ _____ _____
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OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG

PROJECT \_\_\_\_\_ DATE \_\_\_\_\_

VESSEL \_\_\_\_\_ CLIENT \_\_\_\_\_

LOCATION \_\_\_\_\_ SHEET NO. 26

DATE/TIME		DATA ANNOTATION				ENVIRONMENTAL				PROFILER				SIDE SCAN				COMMENTS
JULIAN DAY	TIME GMT	DATA LOG	LINE #	TAPE #	TAPE FOOT	HOG. #	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE #	FIRE RATE	PCU KV	PROC. GAIN	RANGE SCALE	GAIN SETTINGS INITIAL	MAX	SLOPE	
294	05:30	71	6	19	36.5	4.1	8	3	3	0.5	3	3	2.5				23.4	
	06:00	73	6	19	240	5.3	19	3	3	0.5	3	3	2.5				28.3	
	06:30	73	6	19	221.1	5.8	19	3	3	0.5	3	3	2.5				38.3	
	07:02	73	6	19	223.5	4.8	19	3	3	0.5	3	3	2.5				34.3	
	07:29	74	6	20	318.2	4.0	17	3	3	0.5	3	3	2.5				31.5	
	08:00	74	6	20	322.4	5.2	7	3	3	0.5	3	3	2.5				14.2	
	08:30	74	6	20	322.5	6.2	7	3	3	0.5	3	3	2.5				23.0	EOL 74 Receiver Gain
294	1945	506	7	7						0.5	3	3	2.5				26	Dapson DTS
	1949	75	7	7	0.61	4.5	11	2	2	0.5	3	3	2.5				23	SOL # 75
	2005	75	7	1														SOF # 1
	2044	EOL	75	7	67	57	20	2	2	0.5	3	3	2.5				28	EOL # 75
294	2101	506	7	2	132	56	14	2	2	0.5	3	3	2.5				3.3	SOL # 76
	2208	76	7	2	132	57	12	2	2	0.5	3	3	2.5				30	#

<b>HUNTEC DTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scans 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.		<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan		<b>CONSOLE SETTINGS:</b> ASP Gain _____ BMC Mode _____ Fixed Spr. _____ Preset Adap. _____ Pressure Heave _____ Normal		<b>PROFILER GRAPHICS:</b> Sweep (msec.) _____ Hydrophone type _____ Filter - HZ High _____ Print _____		<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____		<b>OPERATORS:</b> _____ _____ _____ _____	
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OFFSHORE TECHNICAL SERVICES  
 Arco Building, Bedford Institute of Oceanography,  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3P9

# WATCHKEEPERS LOG

PROJECT C135-02 DATE 21/10/97  
 VESSEL HUGO-0583 CLIENT N.R.C. - ATL  
 LOCATION \_\_\_\_\_ SHEET NO. 27

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS			
JULIAN DAY	TIME GMT	LINE #	TAPE #	HOG. FOOT	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE (B.M.)	FIRE RATE	PQJ KV	PROC GAIN	L/D M	RANGE SCALE		GAIN SETTINGS INITIAL	MAX SLOPE	DEPTH (M)
294	2227	76	7	2	117	5.3	17	✓	0.5	3	3	21				25	EOL # 76
294	2230	77	7	3	60	4.3	14	✓	0.5	3	3	22				25	SOL # 77
294	2300	77	7	3	49	5.9	10	✓	0.5	3	3	33.4				25	
294	2316	77	7	3	57	5.7	10	✓	0.5	3	3	30.7				25	EOL # 77
294	2320	78	7	4	135	5.4	10	✓	0.5	3	3	30.9				25	SOL # 78
295	0000	78	7	4	134	5.1	10	✓	0.5	3	3	35.1				25	
295	0026	EOL	78	7	120	4.7	11	✓	0.5	3	3	34				25	EOL # 78
295	0030	SOL	79	7	31	4.0	11	✓	0.5	3	3	34				25	SOL # 79
295	0100	79	7	5	41	5.0	18	✓	0.5	3	3	37				25	
295	0130	79	7	5	41	5.2	18	✓	0.5	3	3	36				25	
295	0156	EOL	79	7	41	5.2	12	✓	0.5	3	3	22				25	EOL # 79
295	0267	SOL	80	7	156	5.6	12	✓	0.5	3	3	23				25	SOL # 80
295	0230	80	7	5	159	5.0	16	✓	0.5	3	3	37				25	
295	0300	80	7	5	157	4.9	16	✓	0.5	3	3	39				25	
295	0323	80	7	5	151	5.1	19	✓	0.5	3	3	39				25	

**HUNTEC DTS:**  
 Deep Tow 500J  
 1000J  
 Side Scan 50KHZ  
 100 KHZ  
 Sparker Option  
 Fish Posit. Opt.  
 Alltm. Opt.

**OTHER EQUIP:**  
 Sparker  
 Air Gun  
 Sounder  
 Side Scan  
 3.5 kHz  
 \_\_\_\_\_  
 \_\_\_\_\_

**CONSOLE SETTINGS:**  
 ASP Gain \_\_\_\_\_  
 BMC Mode \_\_\_\_\_  
 INT \_\_\_\_\_  
 Fixed Spr. \_\_\_\_\_  
 Preset \_\_\_\_\_  
 Adap. \_\_\_\_\_  
 Pressure Heave \_\_\_\_\_  
 Normal \_\_\_\_\_

**PROFILER GRAPHICS:**  
 Sweep (msec.) \_\_\_\_\_  
 Hydrophone type \_\_\_\_\_  
 Filter - Hz High \_\_\_\_\_  
 -Hz Low \_\_\_\_\_  
 Print \_\_\_\_\_

**TAPE SETTINGS:**  
 CH#1 \_\_\_\_\_  
 CH#2 \_\_\_\_\_  
 CH#3 \_\_\_\_\_  
 CH#4 \_\_\_\_\_  
 CH#5 \_\_\_\_\_  
 CH#6 \_\_\_\_\_  
 CH#7 \_\_\_\_\_  
 CH#8 \_\_\_\_\_  
 Tape Speed \_\_\_\_\_

**OPERATORS:**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_



OFFSHORE TECHNICAL SERVICES  
 Argo Building, Bedford Institute of Oceanography,  
 P. O. Box 696, Dartmouth, Nova Scotia, Canada B2Y 3Y9

# WATCHKEEPERS LOG HUDSON 97-058

PROJECT C135-02 DATE 10/22/97  
 VESSEL HN97-058 CLIENT \_\_\_\_\_  
 LOCATION \_\_\_\_\_ SHEET NO. 28

DATE/TIME		DATA ANNOTATION			ENVIRONMENTAL			PROFILER			SIDE SCAN			COMMENTS				
JULIAN DAY	TIME GMT	LINE #	TAPE #	TAPE FOOT	HDG.	SHIP SPD.	FISH DEPTH	SEA STATE	SOURCE	FIRE RATE	POJ KV	PROC GAIN	W/D		RANGE SCALE	GAIN SETTINGS		
									B.M.	SP.					INITIAL	MAX	SLOPE	
295	4:01	80	7	5	100	4.8	17	1.5	V		3	3						EDL #80
295	4:02	81	7	5	106	5.6	17	1.5	V		3	3						SOL #80
295	4:30	-	7	6	112	5.1	17	1.5	V		3	3						
295	5:00	-	7	6	117	5.3	17	1.5	V		3	3						
295	5:35	-	7	8	109	5.3	17	1.5	V		3	3						
295	6:00	-	7	6	108	5.1	17	1.5	V		3	3						
295	6:30	-	7	7	109	5.2	17	1.5	V		3	3						
295	7:00	81	7	7	106	5.1	17	1.5	V		3	3						EDL #81
295	7:00	82	7	7	106	5.1	17	1.5	V		3	3						SOL #82
295	0730	82	7	8	245	4.7	13	1.5	V		3	3						
295	08:01	82	7	8	242	4.9	13	1.5	V		3	3						EDL #82
295	8:13	83	7	8	116	4.9	13	1.5	V		3	3						SOL #83
295	8:30	-	7	8	120	5.3	13	1.5	V		3	3						
295	9:00	83	7	8	124	5.4	8	1.5	V		3	3						
295	9:30	83	7	9	121	4.9	9	1.5	V		3	3						

<b>HUNTEC DTS:</b> <input type="checkbox"/> Deep Tow 500J <input type="checkbox"/> 1000J <input type="checkbox"/> Side Scan 50KHZ <input type="checkbox"/> 100 KHZ <input type="checkbox"/> Sparker Option <input type="checkbox"/> Fish Posit. Opt. <input type="checkbox"/> Altim. Opt.	<b>OTHER EQUIP:</b> <input type="checkbox"/> Sparker <input type="checkbox"/> Air Gun <input type="checkbox"/> Sounder <input type="checkbox"/> Side Scan	<b>CONSOLE SETTINGS:</b> ASP Gain _____ Fixed Spr. _____ Preset _____ Adap. _____ Pressure _____ Heave _____ Normal _____ BMC Mode _____	<b>PROFILER GRAPHICS:</b> Sweep (msec.) _____ Hydrophone type _____ Filter - Hz High _____ Filter - Hz Low _____ Print _____	<b>INT.</b> _____ <b>EXT.</b> _____ + ± - _____	<b>TAPE SETTINGS:</b> CH#1 _____ CH#2 _____ CH#3 _____ CH#4 _____ CH#5 _____ CH#6 _____ CH#7 _____ CH#8 _____ Tape Speed _____	<b>OPERATORS:</b> _____ _____ _____
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NAVIGATION/ DEPTH LISTINGS

HUDSON 97-058

1 min. logged Bathymetry (m.)

DAY 284

284180906	44.282730	-63.029670	164.0	284194807	44.171400	-62.985010	186.0	284212906	44.106050	-62.911500	226.0
284181006	44.281590	-63.029220	166.0	284194906	44.170120	-62.984540	187.0	284213006	44.106970	-62.909960	221.0
284181107	44.280460	-63.028900	170.0	284195006	44.168810	-62.984070	186.0	284213106	44.107860	-62.908430	222.0
284181206	44.279340	-63.028490	166.0	284195107	44.167450	-62.983610	186.0	284213206	44.108750	-62.906910	222.0
284181306	44.278250	-63.027970	166.0	284195205	44.166110	-62.983150	185.0	284213306	44.109620	-62.905340	222.0
284181406	44.277130	-63.027520	166.0	284195307	44.164760	-62.982600	184.0	284213406	44.110500	-62.903790	222.0
284181506	44.276010	-63.027090	166.0	284195406	44.163480	-62.982150	186.0	284213505	44.111380	-62.902280	222.0
284181606	44.274890	-63.026600	167.0	284195505	44.162200	-62.981500	186.0	284213606	44.112280	-62.900710	222.0
284181707	44.273790	-63.026150	168.0	284195605	44.160960	-62.981060	187.0	284213706	44.113170	-62.899170	223.0
284181807	44.272650	-63.025700	169.0	284195705	44.159730	-62.980520	186.0	284213806	44.114090	-62.897660	223.0
284181906	44.271500	-63.025380	169.0	284195805	44.158580	-62.980000	186.0	284213906	44.115020	-62.896140	223.0
284182007	44.270370	-63.025020	169.0	284195906	44.157450	-62.979500	186.0	284214006	44.115940	-62.894600	223.0
284182106	44.269260	-63.024520	169.0	284200005	44.156300	-62.979050	186.0	284214106	44.116820	-62.893050	224.0
284182206	44.268130	-63.023920	169.0	284200106	44.155150	-62.978580	185.0	284214206	44.117720	-62.891510	225.0
284182307	44.267030	-63.023420	170.0	284200205	44.154040	-62.978120	185.0	284214306	44.118640	-62.890000	224.0
284182407	44.265890	-63.023010	170.0	284200306	44.152910	-62.977680	184.0	284214406	44.119590	-62.888540	224.0
284182506	44.264750	-63.022620	171.0	284200406	44.151790	-62.977230	183.0	284214506	44.120560	-62.887070	224.0
284182606	44.263630	-63.022220	171.0	284200506	44.150670	-62.976760	183.0	284214606	44.121490	-62.885610	225.0
284182706	44.262490	-63.021710	172.0	284200605	44.149560	-62.976300	182.0	284214706	44.122410	-62.884070	225.0
284182806	44.261380	-63.021170	172.0	284200705	44.148380	-62.975890	181.0	284214805	44.123310	-62.882550	225.0
284182907	44.260250	-63.020590	171.0	284200805	44.147260	-62.975480	181.0	284214905	44.124210	-62.881020	225.0
284183006	44.259120	-63.020110	171.0	284200906	44.146110	-62.975070	180.0	284215005	44.125080	-62.879540	226.0
284183107	44.257980	-63.019680	171.0	284201005	44.144990	-62.974580	180.0	284215106	44.125950	-62.878000	226.0
284183206	44.256870	-63.019270	171.0	284201106	44.143880	-62.974120	181.0	284215206	44.126850	-62.876480	227.0
284183307	44.255690	-63.018870	172.0	284201206	44.142760	-62.973680	181.0	284215306	44.127750	-62.875050	226.0
284183407	44.254490	-63.018510	173.0	284201306	44.141640	-62.973250	183.0	284215405	44.128630	-62.873610	226.0
284183506	44.253380	-63.018040	170.0	284201406	44.140530	-62.972820	184.0	284215505	44.129520	-62.872090	227.0
284183606	44.252230	-63.017460	169.0	284201505	44.139420	-62.972390	185.0	284215605	44.130430	-62.870570	227.0
284183706	44.251090	-63.016910	168.0	284201606	44.138310	-62.971970	186.0	284215706	44.131310	-62.869020	228.0
284183806	44.249950	-63.016400	168.0	284201706	44.137210	-62.971580	188.0	284215805	44.132200	-62.867440	227.0
284183906	44.248800	-63.016010	168.0	284201806	44.136120	-62.971190	189.0	284215904	44.133040	-62.865890	228.0
284184007	44.247620	-63.015660	171.0	284201906	44.135040	-62.970770	191.0	284220006	44.133880	-62.864270	228.0
284184106	44.246450	-63.015320	173.0	284202006	44.133960	-62.970340	191.0	284220104	44.134700	-62.862740	228.0
284184207	44.245300	-63.014880	174.0	284202106	44.132900	-62.969860	192.0	284220205	44.135580	-62.861170	229.0
284184306	44.244190	-63.014430	175.0	284202206	44.131830	-62.969390	193.0	284220305	44.136430	-62.859610	229.0
284184407	44.243010	-63.013820	177.0	284202306	44.130780	-62.968860	194.0	284220405	44.137290	-62.858070	229.0
284184506	44.241860	-63.013440	179.0	284202406	44.129700	-62.968410	195.0	284220505	44.138210	-62.856520	229.0
284184606	44.240710	-63.013020	184.0	284202506	44.128600	-62.968000	197.0	284220605	44.139080	-62.855120	229.0
284184706	44.239540	-63.012480	184.0	284202606	44.127500	-62.967570	198.0	284220705	44.140030	-62.853600	230.0
284184807	44.238400	-63.011910	183.0	284202706	44.126390	-62.967130	200.0	284220805	44.140970	-62.852120	230.0
284184906	44.237270	-63.011440	183.0	284202806	44.125270	-62.966750	201.0	284220905	44.141910	-62.850670	230.0
284185006	44.236080	-63.011020	183.0	284202906	44.124150	-62.966360	201.0	284221005	44.142840	-62.849140	231.0
284185106	44.234930	-63.010620	183.0	284203006	44.123060	-62.965910	201.0	284221105	44.143790	-62.847600	231.0
284185206	44.233760	-63.010160	183.0	284203105	44.121980	-62.965420	201.0	284221205	44.144690	-62.846110	232.0
284185306	44.232570	-63.009720	184.0	284203206	44.120900	-62.964840	202.0	284221305	44.145580	-62.844550	232.0
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285195142	45.635600	-60.051200	134.0	285213252	45.499520	-60.100130	164.0	285231411	45.561290	-60.070250	152.0
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286002100	45.640790	-60.041080	120.0	286020209	45.772990	-59.992790	77.0	286034319	45.828460	-59.967240	55.0
286002200	45.642030	-60.040700	127.0	286020309	45.774260	-59.992320	84.0	286034419	45.827130	-59.967820	55.0
286002300	45.643290	-60.040290	137.0	286020409	45.775510	-59.991820	87.0	286034519	45.825820	-59.968340	59.0
286002359	45.644490	-60.039870	140.0	286020509	45.776740	-59.991420	89.0	286034619	45.824530	-59.968820	55.0
286002500	45.645730	-60.039450	136.0	286020609	45.777970	-59.990990	87.0	286034719	45.823260	-59.969280	59.0
286002600	45.646960	-60.039000	132.0	286020709	45.779160	-59.990490	83.0	286034818	45.822010	-59.969750	58.0
286002700	45.648170	-60.038640	129.0	286020809	45.780370	-59.990060	74.0	286034918	45.820730	-59.970240	53.0
286002800	45.649410	-60.038270	129.0	286020909	45.781630	-59.989670	78.0	286035019	45.819420	-59.970710	51.0
286002904	45.650750	-60.037830	129.0	286021009	45.782930	-59.989290	78.0	286035118	45.818130	-59.971070	50.0
286003005	45.652060	-60.037460	129.0	286021109	45.784250	-59.988870	68.0	286035218	45.816800	-59.971500	50.0
286003105	45.653310	-60.037170	128.0	286021209	45.785600	-59.988320	61.0	286035318	45.815490	-59.972090	50.0
286003205	45.654500	-60.036770	125.0	286021309	45.786970	-59.987870	60.0	286035418	45.814220	-59.972640	52.0
286003305	45.655700	-60.036420	121.0	286021409	45.788330	-59.987400	63.0	286035518	45.812920	-59.973110	57.0
286003405	45.656920	-60.035750	119.0	286021509	45.789700	-59.986890	71.0	286035618	45.811570	-59.973530	59.0
286003505	45.658160	-60.035220	114.0	286021609	45.791090	-59.986350	76.0	286035718	45.810290	-59.974070	58.0
286003605	45.659440	-60.034660	103.0	286021709	45.792490	-59.985820	70.0	286035818	45.808940	-59.974520	58.0
286003704	45.660660	-60.034120	96.0	286021809	45.793880	-59.985340	48.0	286035918	45.807700	-59.975000	58.0
286003805	45.662050	-60.033540	93.0	286021909	45.795270	-59.984940	31.0	286040018	45.806380	-59.975460	55.0
286003905	45.663350	-60.032960	103.0	286022009	45.796670	-59.984480	30.0	286040117	45.805100	-59.975840	53.0
286004005	45.664650	-60.032410	108.0	286022109	45.798080	-59.984060	32.0	286040218	45.803780	-59.976270	49.0
286004105	45.665970	-60.031850	109.0	286022209	45.799480	-59.983510	28.0	286040318	45.802520	-59.976900	48.0
286004205	45.667280	-60.031370	115.0	286022309	45.800900	-59.983000	31.0	286040417	45.801220	-59.977440	37.0
286004305	45.668610	-60.030900	116.0	286022409	45.802310	-59.982490	35.0	286040518	45.799900	-59.977850	35.0
286004405	45.669930	-60.030460	123.0	286022509	45.803700	-59.981990	43.0	286040618	45.798580	-59.978400	37.0
286004505	45.671240	-60.030020	122.0	286022609	45.805070	-59.981460	45.0	286040717	45.797230	-59.979010	40.0
286004605	45.672560	-60.029610	110.0	286022714	45.806550	-59.980830	48.0	286040817	45.795860	-59.979540	40.0
286004705	45.673830	-60.029200	101.0	286022814	45.807910	-59.980210	47.0	286040914	45.794570	-59.979970	44.0
286004805	45.675170	-60.028760	102.0	286022914	45.809310	-59.979560	48.0	286041018	45.793130	-59.980520	61.0
286004905	45.676490	-60.028410	101.0	286023014	45.810720	-59.978940	48.0	286041118	45.791710	-59.980970	76.0
286005005	45.677850	-60.028030	103.0	286023114	45.812120	-59.978330	49.0	286041218	45.790500	-59.981450	73.0
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286005205	45.680520	-60.026970	83.0	286023314	45.814880	-59.977180	53.0	286041418	45.787910	-59.982420	74.0
286005305	45.681880	-60.026470	84.0	286023414	45.816250	-59.976520	57.0	286041518	45.786660	-59.982830	77.0
286005405	45.683200	-60.026010	73.0	286023514	45.817610	-59.975880	68.0	286041618	45.785370	-59.983250	78.0
286005504	45.684490	-60.025540	101.0	286023614	45.818990	-59.975480	63.0	286041718	45.784090	-59.983760	79.0
286005605	45.685790	-60.025080	106.0	286023714	45.820320	-59.975030	61.0	286041823	45.782720	-59.984200	82.0
286005705	45.687160	-60.024570	78.0	286023814	45.821650	-59.974570	58.0	286041923	45.781430	-59.984590	83.0
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286005904	45.689850	-60.023660	84.0	286024014	45.824360	-59.973880	54.0	286042123	45.778950	-59.985610	88.0
286010005	45.691250	-60.023200	113.0	286024114	45.825710	-59.973480	55.0	286042223	45.777710	-59.986040	90.0
286010105	45.692580	-60.022730	110.0	286024214	45.827020	-59.973010	57.0	286042323	45.776470	-59.986450	89.0
286010201	45.693820	-60.022200	112.0	286024314	45.828350	-59.972680	58.0	286042423	45.775200	-59.986920	88.0
286010305	45.695130	-60.021650	112.0	286024414	45.829700	-59.972240	54.0	286042523	45.773910	-59.987340	84.0
286010405	45.696510	-60.021160	111.0	286024514	45.831020	-59.971910	51.0	286042623	45.772630	-59.987790	86.0
286010505	45.697780	-60.020660	110.0	286024614	45.832340	-59.971400	52.0	286042723	45.771330	-59.988220	90.0
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286010805	45.701800	-60.019000	107.0	286024914	45.836400	-59.969930	76.0	286043023	45.767340	-59.989860	91.0
286010905	45.703140	-60.018470	106.0	286025014	45.837780	-59.969480	77.0	286043123	45.766000	-59.990330	90.0
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286011105	45.705870	-60.017410	104.0	286025214	45.840480	-59.968280	74.0	286043323	45.763380	-59.991310	89.0
286011205	45.707230	-60.016950	103.0	286025314	45.841850	-59.967810	72.0	286043423	45.762070	-59.991730	90.0
286011305	45.708570	-60.016460	102.0	286025414	45.843250	-59.967340	71.0	286043523	45.760780	-59.992170	89.0
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286011705	45.714040	-60.014550	101.0	286025814	45.848750	-59.965330	69.0	286043923	45.755570	-59.994130	85.0
286011805	45.715390	-60.014110	100.0	286025914	45.850140	-59.964880	68.0	286044023	45.754270	-59.994620	81.0
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286012005	45.718060	-60.013210	97.0	286030114	45.852830	-59.963660	68.0	286044223	45.751640	-59.995610	70.0
286012105	45.719410	-60.012800	97.0	286030214	45.854240	-59.963230	67.0	286044323	45.750330	-59.996180	69.0
286012205	45.720760	-60.012360	97.0	286030314	45.855620	-59.962760	66.0	286044423	45.749020	-59.996660	71.0
286012305	45.722100	-60.011870	97.0	286030414	45.856960	-59.962200	67.0	286044523	45.747700	-59.997120	73.0
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286051023	45.713100	-60.009330	104.0	286065122	45.570430	-60.058970	159.0	286083221	45.700210	-60.008990	123.0
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286053023	45.684110	-60.020080	95.0	286071122	45.592330	-60.047950	157.0	286085221	45.726970	-59.998950	102.0
286053123	45.682670	-60.020600	76.0	286071222	45.593610	-60.047560	157.0	286085321	45.728340	-59.998480	100.0
286053223	45.681230	-60.021160	91.0	286071322	45.594870	-60.047170	161.0	286085421	45.729720	-59.997950	100.0
286053323	45.679780	-60.021670	104.0	286071422	45.596090	-60.046770	179.0	286085521	45.731120	-59.997430	99.0
286053423	45.678380	-60.022200	108.0	286071522	45.597310	-60.046200	177.0	286085621	45.732570	-59.996960	99.0
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286054123	45.668410	-60.025850	113.0	286072222	45.605820	-60.043160	165.0	286090321	45.742980	-59.993190	80.0
286054223	45.666990	-60.026260	108.0	286072322	45.607000	-60.042640	163.0	286090421	45.744480	-59.992700	81.0
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286054423	45.664130	-60.027370	112.0	286072522	45.609590	-60.041870	161.0	286090621	45.747360	-59.991460	77.0
286054522	45.662700	-60.027880	113.0	286072622	45.610920	-60.041480	160.0	286090721	45.748810	-59.990930	80.0
286054623	45.661280	-60.028390	115.0	286072722	45.612210	-60.041040	156.0	286090821	45.750230	-59.990430	83.0
286054722	45.659890	-60.028870	119.0	286072822	45.613560	-60.040550	150.0	286090921	45.751690	-59.989920	87.0
286054822	45.658470	-60.029320	124.0	286072922	45.614840	-60.040010	150.0	286091021	45.753090	-59.989410	87.0
286054923	45.657020	-60.029850	128.0	286073022	45.616170	-60.039480	154.0	286091121	45.754550	-59.988940	88.0
286055022	45.655630	-60.030450	127.0	286073122	45.617500	-60.038860	155.0	286091221	45.755970	-59.988530	91.0
286055122	45.654240	-60.031060	126.0	286073222	45.618870	-60.038330	155.0	286091321	45.757350	-59.988160	91.0
286055222	45.652840	-60.031490	131.0	286073322	45.620250	-60.037920	155.0	286091421	45.758640	-59.987640	91.0
286055322	45.651440	-60.031940	134.0	286073422	45.621640	-60.037440	156.0	286091521	45.759940	-59.987100	92.0
286055422	45.650030	-60.032470	135.0	286073522	45.622990	-60.036930	157.0	286091617	45.761200	-59.986630	93.0
286055522	45.648630	-60.032990	133.0	286073622	45.624290	-60.036470	155.0	286091721	45.762700	-59.986190	93.0
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286055722	45.645820	-60.034000	125.0	286073822	45.626840	-60.035510	152.0	286091921	45.765450	-59.985290	84.0
286055822	45.644410	-60.034510	117.0	286073922	45.628160	-60.035080	150.0	286092021	45.766840	-59.984830	80.0
286055922	45.642990	-60.034950	117.0	286074022	45.629540	-60.034600	147.0	286092126	45.768380	-59.984380	84.0
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286060122	45.640150	-60.035960	124.0	286074222	45.632180	-60.033520	138.0	286092326	45.771340	-59.983500	91.0
286060222	45.638740	-60.036550	128.0	286074322	45.633540	-60.033120	134.0	286092426	45.772800	-59.983050	91.0
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286060422	45.635890	-60.037580	134.0	286074522	45.636240	-60.032310	131.0	286092626	45.775730	-59.982100	91.0
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286060723	45.631600	-60.039120	132.0	286074822	45.640250	-60.030850	133.0	286092926	45.779990	-59.979700	93.0
286060823	45.630190	-60.039670	137.0	286074922	45.641620	-60.030370	131.0	286093026	45.781360	-59.979160	91.0
286060923	45.628760	-60.040180	137.0	286075022	45.643000	-60.029880	122.0	286093126	45.782710	-59.978590	83.0
286061023	45.627370	-60.040690	141.0	286075122	45.644360	-60.029370	120.0	286093226	45.784090	-59.978120	79.0
286061123	45.625920	-60.041150	148.0	286075222	45.645690	-60.028840	117.0	286093326	45.785470	-59.977590	76.0
286061222	45.624520	-60.041630	150.0	286075322	45.647070	-60.028210	120.0	286093426	45.786760	-59.977180	72.0
286061323	45.623070	-60.042190	152.0	286075422	45.648430	-60.027810	125.0	286093526	45.788060	-59.976700	69.0
286061423	45.621640	-60.042740	154.0	286075522	45.649730	-60.027300	137.0	286093626	45.789390	-59.976180	67.0
286061522	45.620210	-60.043320	154.0	286075622	45.651120	-60.026760	135.0	286093726	45.790730	-59.975640	63.0
286061622	45.618800	-60.043900	155.0	286075722	45.652500	-60.026290	138.0	286093826	45.792120	-59.975170	47.0
286061723	45.617390	-60.044420	154.0	286075822	45.653860	-60.025920	135.0	286093926	45.793520	-59.974710	41.0
286061822	45.615970	-60.044890	154.0	286075922	45.655170	-60.025480	133.0	286094026	45.794930	-59.974230	44.0
286061922	45.614580	-60.045310	152.0	286080022	45.656470	-60.024890	132.0	286094126	45.796360	-59.973720	49.0
286062022	45.613140	-60.045770	150.0	286080122	45.657780	-60.024320	130.0	286094226	45.797810	-59.973210	53.0
286062122	45.611740	-60.046260	148.0	286080222	45.659130	-60.023830	127.0	286094326	45.799240	-59.972520	57.0
286062222	45.610330	-60.046790	152.0	286080322	45.660510	-60.023420	127.0	286094426	45.800700	-59.971910	61.0
286062322	45.608910	-60.047360	155.0	286080422	45.661860	-60.022960	125.0	286094526	45.802190	-59.971380	62.0
286062422	45.607490	-60.047920	156.0	286080522	45.663190	-60.022450	120.0	286094626	45.803650	-59.970850	63.0
286062522	45.606080	-60.048510	156.0	286080622	45.664530	-60.021970	113.0	286094726	45.805150	-59.970350	65.0
286062622	45.604690	-60.049100	159.0	286080722	45.665890	-60.0					

286101226	45.843150	-59.956670	59.0	286220945	45.784350	-59.967560	2.5	286235049	45.641520	-60.019470	136.0
286101326	45.844680	-59.956260	62.0	286221045	45.782940	-59.968060	96.0	286235149	45.640020	-60.020130	136.0
286101426	45.846160	-59.955680	59.0	286221145	45.781510	-59.968450	98.0	286235249	45.638540	-60.020640	138.0
286101526	45.847630	-59.955000	55.0	286221245	45.780060	-59.968880	93.0	286235349	45.637070	-60.021160	140.0
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286102836	45.865880	-59.948430	65.0	286222445	45.763460	-59.974920	97.0	287000104	45.626250	-60.025150	148.0
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286103036	45.868180	-59.947410	63.0	286222641	45.760960	-59.975960	91.0	287000304	45.623270	-60.026180	159.0
286103135	45.869300	-59.946990	63.0	286222745	45.759530	-59.976530	87.0	287000404	45.621720	-60.026710	169.0
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286103536	45.873430	-59.944210	61.0	286223145	45.754150	-59.978480	86.0	287000804	45.615650	-60.028930	165.0
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286103735	45.875290	-59.942680	61.0	286223345	45.751450	-59.979320	95.0	287001004	45.612620	-60.030090	163.0
286103835	45.876350	-59.941940	61.0	286223445	45.750080	-59.979760	97.0	287001104	45.611100	-60.030710	160.0
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				286224045	45.741770	-59.982810	93.0	287001704	45.601960	-60.033850	165.0
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286210246	45.874730	-59.934520	53.8	286224345	45.737450	-59.984350	98.0	287002004	45.597380	-60.035510	169.0
286210346	45.874080	-59.935860	55.7	286224445	45.736010	-59.984760	100.0	287002104	45.595880	-60.035990	176.0
286210446	45.873180	-59.936770	3.2	286224545	45.734550	-59.985260	87.0	287002204	45.594350	-60.036540	182.0
286210546	45.872150	-59.937300	2.6	286224645	45.733090	-59.985770	85.0	287002304	45.592850	-60.037000	172.0
286210646	45.871010	-59.937590	2.6	286224745	45.731620	-59.986330	91.0	287002404	45.591310	-60.037670	157.0
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286210846	45.868580	-59.937850	2.5	286224945	45.728700	-59.987420	108.0	287002604	45.588260	-60.039100	161.0
286210946	45.867340	-59.937520	2.8	286225045	45.727280	-59.987930	108.0	287002704	45.586770	-60.039850	157.0
286211046	45.866130	-59.937140	2.3	286225145	45.725860	-59.988510	106.0	287002804	45.585250	-60.040420	154.0
286211146	45.864940	-59.937140	2.2	286225245	45.724430	-59.989110	107.0	287002904	45.583720	-60.040920	152.0
286211246	45.863680	-59.937310	56.1	286225345	45.723010	-59.989620	110.0	287003004	45.582240	-60.041420	152.0
286211346	45.862890	-59.938440	54.3	286225445	45.721600	-59.990150	110.0	287003104	45.580750	-60.042040	150.0
286211446	45.861920	-59.939160	53.1	286225545	45.720230	-59.990660	109.0	287003204	45.579230	-60.042640	153.0
286211546	45.860990	-59.939840	53.3	286225645	45.718840	-59.991240	109.0	287003304	45.577740	-60.043010	154.0
286211646	45.859850	-59.940530	54.0	286225745	45.717460	-59.991840	111.0	287003404	45.576250	-60.043370	147.0
286211746	45.858700	-59.940990	55.3	286225845	45.716060	-59.992370	113.0	287003504	45.574740	-60.043860	154.0
286211846	45.857460	-59.941200	2.2	286225945	45.714670	-59.992950	119.0	287003604	45.573260	-60.044390	154.0
286211946	45.856140	-59.941490	3.0	286230045	45.713260	-59.993500	129.0	287003704	45.571800	-60.044850	152.0
286212046	45.854730	-59.941670	2.6	286230145	45.711850	-59.994000	121.0	287003804	45.570290	-60.045330	151.0
286212146	45.853310	-59.942010	2.6	286230245	45.710450	-59.994460	115.0	287003904	45.568820	-60.045760	155.0
286212245	45.851880	-59.942440	55.9	286230345	45.709040	-59.994960	119.0	287004004	45.567380	-60.046330	155.0
286212345	45.850480	-59.942990	55.5	286230445	45.707650	-59.995390	123.0	287004104	45.565890	-60.046970	157.0
286212445	45.849100	-59.943600	52.9	286230545	45.706280	-59.995830	130.0	287004204	45.564410	-60.047540	159.0
286212545	45.847690	-59.944100	54.9	286230645	45.704900	-59.996300	135.0	287004304	45.562920	-60.048120	161.0
286212645	45.846290	-59.944600	2.6	286230745	45.703520	-59.996830	133.0	287004403	45.561450	-60.048620	159.0
286212745	45.844870	-59.945110	4.6	286230845	45.702140	-59.997290	137.0	287004504	45.559960	-60.049060	156.0
286212845	45.843410	-59.945620	2.7	286230945	45.700770	-59.997710	149.0	287004604	45.558520	-60.049490	161.0
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286213045	45.840600	-59.946560	2.7	286231145	45.698010	-59.998700	152.0	287004804	45.555660	-60.050480	174.0
286213145	45.839190	-59.947090	2.6	286231245	45.696590	-59.999130	136.0	287004904	45.554220	-60.051090	178.0
286213245	45.837760	-59.947620	2.6	286231345	45.695190	-59.999590	136.0	287005004	45.552780	-60.051700	172.0
286213345	45.836310	-59.948150	53.0	286231445	45.693800	-60.000160	128.0	287005104	45.551350	-60.052320	163.0
286213445	45.834870	-59.948700	52.1	286231545	45.692400	-60.000750	122.0	287005204	45.549900	-60.052990	170.0
286213545	45.833420	-59.949290	50.0	286231645	45.691020	-60.001360	117.0	287005304	45.548450	-60.053570	178.0
286213645	45.831980	-59.949790	44.2	286231745	45.689640	-60.001910	116.0	287005404	45.547010	-60.054040	175.0
286213745	45.830550	-59.950320	41.6	286231845	45.688230	-60.002380	116.0	287005504	45.545570	-60.054510	178.0
286213845	45.829140	-59.950940	48.3	286231945	45.686820	-60.002880	117.0	287005604	45.544110	-60.055040	173.0
286213945	45.827710	-59.951500	48.7	286232045	45.685400	-60.003370	116.0	287005704	45.542620	-60.055500	163.0
286214045	45.826300	-59.951990	48.4	286232145	45.683960	-60.003850	100.0	287005804	45.541120	-60.055900	162.0
286214145	45.824910	-59.952530	48.3	286232245	45.682530	-60.004420	107.0	287005904	45.539630	-60.056340	166.0
286214245	45.823520	-59.953110	49.2	286232345	45.681100	-60.004940	103.0	287010004	45.538120	-60.056900	173.0
286214345	45.822140	-59.953640	47.3	286232445	45.679680	-60.005490	97.0	287010104	45.536670	-60.057320	177.0
286214445	45.820730	-59.954130	46.6	286232545	45.678260	-60.006070	92.0	287010204	45.535170	-60.057850	178.0
286214545	45.819290	-59.954590	50.5	286232645	45.676830	-60.006620	91.0	287010304	45.533660	-60.058420	179.0
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287012804	45.496670	-60.072040	164.0	287030908	45.580890	-60.047020	147.0	287045012	45.711560	-59.999120	112.0
287012903	45.495230	-60.072600	165.0	287031008	45.581870	-60.046440	145.0	287045112	45.713140	-59.998720	111.0
287013004	45.493820	-60.073170	165.0	287031108	45.582890	-60.046070	146.0	287045212	45.714710	-59.998200	110.0
287013104	45.492390	-60.073730	165.0	287031208	45.583950	-60.045720	150.0	287045310	45.716170	-59.997460	108.0
287013203	45.490980	-60.074100	165.0	287031308	45.585040	-60.045290	149.0	287045412	45.717690	-59.996680	107.0
287013304	45.489740	-60.074040	165.0	287031408	45.586120	-60.044940	155.0	287045512	45.719190	-59.996280	105.0
287013403	45.488620	-60.073810	168.0	287031508	45.587140	-60.044720	151.0	287045612	45.720630	-59.995770	105.0
287013503	45.487480	-60.073710	168.0	287031608	45.588090	-60.044250	159.0	287045712	45.722040	-59.995210	105.0
287013604	45.486120	-60.074080	168.0	287031708	45.589140	-60.043910	162.0	287045812	45.723480	-59.994710	103.0
287013703	45.484830	-60.075230	166.0	287031808	45.590300	-60.043620	169.0	287045912	45.724900	-59.994160	103.0
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287014003	45.484000	-60.081290	163.0	287032108	45.593650	-60.042380	161.0	287050212	45.729300	-59.992600	103.0
287014103	45.484620	-60.083030	213.0	287032208	45.594830	-60.041930	163.0	287050312	45.730750	-59.992040	96.0
287014203	45.485570	-60.084000	164.0	287032308	45.596080	-60.041530	165.0	287050412	45.732230	-59.991560	91.0
287014303	45.486470	-60.084010	163.0	287032408	45.597240	-60.041010	168.0	287050512	45.733700	-59.991100	89.0
287014403	45.487260	-60.083260	163.0	287032508	45.598430	-60.040500	170.0	287050612	45.735160	-59.990550	80.0
287014503	45.488240	-60.082560	162.0	287032608	45.599650	-60.040120	172.0	287050712	45.736670	-59.990080	72.0
287014603	45.489520	-60.082320	162.0	287032708	45.600840	-60.039680	173.0	287050812	45.738160	-59.989600	74.0
287014703	45.490590	-60.081810	162.0	287032808	45.602020	-60.039120	168.0	287050912	45.739610	-59.989130	78.0
287014803	45.491120	-60.080690	163.0	287032908	45.603290	-60.038660	163.0	287051012	45.741040	-59.988630	85.0
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287015003	45.492250	-60.078860	164.0	287033108	45.605950	-60.037890	158.0	287051212	45.744010	-59.987750	92.0
287015103	45.493270	-60.078820	162.0	287033208	45.607210	-60.037480	158.0	287051312	45.745500	-59.987300	93.0
287015203	45.494500	-60.078960	163.0	287033308	45.608410	-60.037090	161.0	287051412	45.746990	-59.986840	91.0
287015303	45.495760	-60.078750	163.0	287033408	45.609580	-60.036680	163.0	287051512	45.748500	-59.986370	88.0
287015403	45.497020	-60.078340	165.0	287033508	45.610750	-60.036210	161.0	287051612	45.749990	-59.985900	88.0
287015503	45.498340	-60.077820	165.0	287033608	45.611890	-60.035720	166.0	287051712	45.751520	-59.985420	90.0
287015603	45.499580	-60.077230	166.0	287033708	45.613050	-60.035210	165.0	287051812	45.753020	-59.984970	93.0
287015703	45.500820	-60.076610	166.0	287033808	45.614200	-60.034880	160.0	287051912	45.754520	-59.984520	96.0
287015803	45.502080	-60.075990	166.0	287033908	45.615360	-60.034400	157.0	287052012	45.755990	-59.984090	99.0
287015903	45.503270	-60.075410	164.0	287034008	45.616620	-60.034020	153.0	287052112	45.757490	-59.983670	96.0
287020003	45.504490	-60.074890	164.0	287034108	45.617840	-60.033540	155.0	287052212	45.758950	-59.983260	94.0
287020100	45.505660	-60.074420	165.0	287034208	45.618960	-60.033220	160.0	287052312	45.760380	-59.982860	93.0
287020203	45.506950	-60.073860	163.0	287034308	45.619940	-60.032930	158.0	287052412	45.761830	-59.982460	93.0
287020303	45.508140	-60.073370	163.0	287034408	45.620980	-60.032390	157.0	287052512	45.763290	-59.982070	93.0
287020403	45.509330	-60.072880	163.0	287034508	45.622080	-60.031930	154.0	287052612	45.764770	-59.981680	91.0
287020503	45.510600	-60.072470	164.0	287034608	45.623240	-60.031400	154.0	287052712	45.766200	-59.981290	87.0
287020603	45.511780	-60.072060	166.0	287034708	45.624500	-60.030930	154.0	287052812	45.767620	-59.980890	84.0
287020703	45.512870	-60.071590	166.0	287034808	45.625820	-60.030530	157.0	287052912	45.769040	-59.980490	87.0
287020803	45.514010	-60.071210	165.0	287034908	45.627080	-60.030070	155.0	287053012	45.770510	-59.980090	88.0
287020903	45.515170	-60.070890	164.0	287035008	45.628300	-60.029560	154.0	287053112	45.772000	-59.979710	95.0
287021008	45.516480	-60.070400	164.0	287035108	45.629570	-60.029130	142.0	287053212	45.773410	-59.979310	94.0
287021108	45.517740	-60.069900	164.0	287035208	45.630890	-60.028710	147.0	287053312	45.774830	-59.978900	91.0
287021208	45.519010	-60.069430	165.0	287035308	45.632210	-60.028330	139.0	287053412	45.776270	-59.978500	91.0
287021308	45.520180	-60.069000	164.0	287035408	45.633460	-60.027930	144.0	287053512	45.777760	-59.978080	91.0
287021408	45.521290	-60.068540	165.0	287035508	45.634830	-60.027420	143.0	287053612	45.779240	-59.977650	92.0
287021508	45.522410	-60.068110	167.0	287035608	45.636070	-60.026890	136.0	287053712	45.780700	-59.977240	94.0
287021608	45.523410	-60.067760	171.0	287035708	45.637310	-60.026380	133.0	287053812	45.782160	-59.976840	93.0
287021708	45.524390	-60.067390	176.0	287035808	45.638560	-60.025880	133.0	287053912	45.783620	-59.976430	94.0
287021808	45.525380	-60.067130	172.0	287035908	45.639870	-60.025390	135.0	287054012	45.785030	-59.976030	95.0
287021908	45.526370	-60.066880	169.0	287040008	45.641170	-60.024940	135.0	287054112	45.786450	-59.975630	87.0
287022008	45.527350	-60.066600	170.0	287040108	45.642420	-60.024570	132.0	287054212	45.787890	-59.975230	83.0
287022108	45.528310	-60.066270	172.0	287040208	45.643610	-60.024200	128.0	287054312	45.789330	-59.974830	88.0
287022208	45.529300	-60.065820	174.0	287040312	45.644940	-60.023630	123.0	287054412	45.790790	-59.974430	74.0
287022308	45.530300	-60.065420	177.0	287040412	45.646160	-60.023280	126.0	287054512	45.792270	-59.974030	65.0
287022408	45.531360	-60.065050	182.0	287040512	45.647410	-60.022870	127.0	287054612	45.793740	-59.973630	68.0
287022508	45.532310	-60.064620	192.0	287040612	45.648680	-60.022420	128.0	287054712	45.795200	-59.973230	67.0
287022608	45.533380	-60.064230	205.0	287040712	45.650020	-60.021970	129.0	287054812	45.796610	-59.972830	66.0
287022708	45.534360	-60.063900	197.0	287040812	45.651330	-60.021620	131.0	287054912	45.798010	-59.972430	67.0
287022808	45.535350	-60.063460	192.0	287040912	45.652590	-60.021280	130.0	287055012	45.799470	-59.972030	65.0
287022908	45.536350	-60.063050	192.0	287041012	45.653890	-60.020860	130.0	287055112	45.800930	-59.971630	71.0
287023008	45.537440	-60.062640	194.0	287041112	45.655230	-60.020410	131.0	287055212	45.802440	-59.971230	71.0
287023108	45.538500	-60.062250	197.0	287041212	45.656600	-60.019920	130.0	287055312	45.803930	-59.970830	61.0
287023208	45.539550	-60.061870	195.0	287041312	45.657970	-60.018740	124.0	287055412	45.805420	-59.970430	64.0
287023308	45.540650	-60.061440	187.0	287041412	45.659320	-60.018230	123.0	287055512	45.806990	-59.970030	65.0
287023408	45.541760	-60.060970	183.0	287041512	45.660690	-60.017710	117.0	287055611	45.808490	-59.969630	67.0
287023508	45.542890	-60.060690	184.0	287041612	45.662100	-60.017230	116.0	287055712	45.809990	-59.969230	63.0
287023608	45.544060	-60.060390	187.0	287041712	45.663490	-60.016830	112.0	287055812	45.811530	-59.968830	60.0
287023708	45.545260	-60.060040	182.0	287041812	45.664840	-60.016410	111.0	287055912	45.813010	-59.968430	56.0
287023808	45.546440	-60.059590	177.0	287041912	45.666190	-60.015880	111.0	287060011	45.814500	-59.968030	55.0
287023908	45.547690	-60.059170	172.0	287042012	45.667530	-60.015380	104.0	287060111	45.816000	-59.967630	56.0
287024008	45.548840	-60.058830	167.0	287042112	45.668910	-60.014950	104.0	287060211	45.817460	-59.967230	57.0
287024108	45.549960	-60.058420	165.0	287042212	45.670280	-60.014430	108.0	287060311	45.818950	-59.966830	55.0
287024208	45.551090	-60.058040	161.0	287042312	45.671680	-60.013990	103.0	287060411	45.820480	-59.966430	51.0
287024308	45.552110	-60.057530	162.0	287042412	45.673110	-60.013390	100.0	287060511	45.821990	-59.966030	52.0
287024408	45.553230	-60.057000	160.0	287042512	45.674520	-60.012930	95.0	287060611	45.823430	-59.965630	54.0
287024508	45.554410	-60.056480	157.0	287042612	45.675960	-60.012410					

287063111	45.856610	-59.946250	67.0	287081210	45.753470	-60.008090	81.0	287095310	45.835770	-59.985390	72.0
287063211	45.857950	-59.945690	67.0	287081310	45.752110	-60.008520	78.0	287095410	45.837190	-59.984950	71.0
287063311	45.859270	-59.945350	66.0	287081410	45.750710	-60.008930	77.0	287095510	45.838680	-59.984540	70.0
287063411	45.860660	-59.944920	62.0	287081510	45.749340	-60.009400	75.0	287095610	45.840180	-59.984070	70.0
287063511	45.862050	-59.944480	64.0	287081610	45.747950	-60.009910	74.0	287095710	45.841730	-59.983580	69.0
287063611	45.863230	-59.945760	70.0	287081710	45.746560	-60.010370	76.0	287095810	45.843220	-59.982940	68.0
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287064311	45.866250	-59.959810	56.0	287082410	45.736970	-60.013860	88.0	287100510	45.853260	-59.979460	63.0
287064411	45.866420	-59.961510	56.0	287082510	45.735590	-60.014360	89.0	287100610	45.854670	-59.979070	62.0
287064511	45.866610	-59.963270	55.0	287082610	45.734180	-60.014600	89.0	287100710	45.856060	-59.978600	53.0
287064611	45.866840	-59.965200	53.0	287082710	45.732860	-60.014950	92.0	287100810	45.857480	-59.978080	51.0
287064711	45.866860	-59.967210	53.0	287082810	45.731480	-60.015330	93.0	287100910	45.858860	-59.977700	50.0
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287065411	45.860150	-59.971950	53.0	287083510	45.728250	-60.022580	93.0	287101610	45.868200	-59.973110	46.0
287065511	45.858790	-59.972510	55.0	287083610	45.729400	-60.022890	83.0	287101709	45.868760	-59.971450	47.0
287065611	45.857380	-59.972900	55.0	287083710	45.730660	-60.022460	80.0	287101809	45.869240	-59.969650	48.0
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287070311	45.847670	-59.976150	66.0	287084410	45.738580	-60.018630	80.0	287201755	45.854610	-60.012920	56.0
287070411	45.846280	-59.976460	67.0	287084510	45.739860	-60.018130	81.0	287201855	45.853830	-60.013050	55.0
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287070611	45.843520	-59.977220	68.0	287084710	45.742550	-60.017180	76.0	287202055	45.852260	-60.012450	57.0
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287071111	45.836600	-59.979660	74.0	287085210	45.750240	-60.014610	0.0	287202555	45.846510	-60.013820	58.0
287071208	45.835330	-59.980110	78.0	287085310	45.751770	-60.014000	0.0	287202655	45.845150	-60.014270	58.0
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287071611	45.829810	-59.981960	64.0	287085710	45.758160	-60.011890	82.0	287203055	45.839960	-60.016200	60.0
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287071911	45.825780	-59.983310	68.0	287090010	45.762740	-60.010510	74.0	287203355	45.836190	-60.017380	63.0
287072011	45.824410	-59.983820	65.0	287090110	45.764310	-60.009950	71.0	287203455	45.834960	-60.017720	62.0
287072111	45.823060	-59.984300	63.0	287090210	45.765870	-60.009340	63.0	287203555	45.833710	-60.018090	60.0
287072211	45.821720	-59.984700	64.0	287090310	45.767500	-60.008730	55.0	287203655	45.832450	-60.018530	59.0
287072311	45.820320	-59.985100	65.0	287090410	45.769180	-60.008160	59.0	287203755	45.831220	-60.019010	58.0
287072411	45.818950	-59.985530	64.0	287090510	45.770810	-60.007550	67.0	287203855	45.830010	-60.019500	58.0
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287072811	45.813570	-59.987540	74.0	287090910	45.777420	-60.005210	67.0	287204255	45.825050	-60.021140	55.0
287072911	45.812200	-59.988040	75.0	287091010	45.779090	-60.004700	65.0	287204355	45.823840	-60.021490	51.0
287073011	45.810870	-59.988540	77.0	287091110	45.780670	-60.004190	61.0	287204455	45.822600	-60.021850	49.0
287073111	45.809560	-59.988980	78.0	287091210	45.782300	-60.003550	59.0	287204555	45.821410	-60.022270	44.0
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287073711	45.801520	-59.991710	38.0	287091810	45.791900	-60.000480	62.0	287205155	45.814210	-60.024950	34.0
287073811	45.800150	-59.992180	40.0	287091910	45.793470	-59.999860	60.0	287205255	45.813050	-60.025290	31.0
287073911	45.798790	-59.992670	43.0	287092010	45.794470	-59.999610	55.0	287205351	45.811950	-60.025630	29.0
287074011	45.797440	-59.993170	46.0	287092110	45.794900	-59.999620	57.0	287205455	45.810720	-60.025950	28.0
287074111	45.796050	-59.993690	49.0	287092210	45.795120	-59.999470	54.0	287205554	45.809530	-60.026310	27.0
287074211	45.794620	-59.994110	57.0	287092310	45.795710	-59.9993080	50.0	287205654	45.808360	-60.026680	33.0
287074311	45.793230	-59.994570	57.0	287092410	45.796730	-59.9992310	47.0	287205755	45.807190	-60.027090	36.0
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287074911	45.784840	-59.997500	60.0	287093010	45.804580	-59.					



287212709	45.773990	-60.038190	47.0	287230958	45.826680	-60.015520	61.0	288004903	45.771470	-60.028410	47.0
287212814	45.772750	-60.038660	48.0	287231058	45.828260	-60.014890	61.0	288005003	45.770240	-60.028810	41.0
287212919	45.771500	-60.039060	45.0	287231158	45.829720	-60.014370	61.0	288005103	45.769070	-60.029320	43.0
287213024	45.770260	-60.039510	44.0	287231258	45.831190	-60.013820	61.0	288005203	45.767880	-60.029840	46.0
287213129	45.769040	-60.039970	40.0	287231358	45.832660	-60.013320	62.0	288005303	45.766690	-60.030220	51.0
287213234	45.767790	-60.040560	42.0	287231458	45.834100	-60.012840	63.0	288005403	45.765510	-60.030600	55.0
287213339	45.766560	-60.041090	41.0	287231558	45.835590	-60.012410	63.0	288005503	45.764330	-60.031040	55.0
287213449	45.765200	-60.041540	47.0	287231703	45.837120	-60.011960	62.0	288005603	45.763140	-60.031470	58.0
287213554	45.763900	-60.042000	49.0	287231803	45.838550	-60.011420	60.0	288005703	45.761960	-60.031960	55.0
287213659	45.762630	-60.042450	47.0	287231908	45.840130	-60.010870	59.0	288005803	45.760760	-60.032420	59.0
287213804	45.761400	-60.042900	51.0	287232008	45.841540	-60.010470	59.0	288005903	45.759570	-60.032940	60.0
287213909	45.760170	-60.043350	50.0	287232108	45.842890	-60.010070	59.0	288010003	45.758400	-60.033420	58.0
287214014	45.758920	-60.043790	50.0	287232213	45.844380	-60.009540	59.0	288010103	45.757190	-60.033950	56.0
287214114	45.757770	-60.044170	51.0	287232313	45.845790	-60.009050	58.0	288010203	45.756000	-60.034420	56.0
287214219	45.756550	-60.044570	55.0	287232418	45.847320	-60.008440	58.0	288010303	45.754750	-60.034710	56.0
287214319	45.755410	-60.044890	58.0	287232518	45.848740	-60.007880	58.0	288010403	45.753540	-60.035050	58.0
287214424	45.754200	-60.045250	61.0	287232623	45.850250	-60.007350	58.0	288010508	45.752210	-60.035380	57.0
287214524	45.753070	-60.045610	57.0	287232728	45.851750	-60.006900	58.0	288010608	45.750980	-60.035740	59.0
287214624	45.751930	-60.046010	58.0	287232833	45.853280	-60.006480	57.0	288010708	45.749760	-60.036140	62.0
287214724	45.750800	-60.046400	58.0	287232938	45.854730	-60.005920	57.0	288010808	45.748510	-60.036560	63.0
287214824	45.749660	-60.046860	64.0	287233043	45.856240	-60.005400	56.0	288010908	45.747270	-60.036930	58.0
287214924	45.748530	-60.047260	64.0	287233153	45.857880	-60.005040	56.0	288011008	45.746010	-60.037370	58.0
287215023	45.747430	-60.047650	57.0	287233258	45.859340	-60.005300	54.0	288011108	45.744800	-60.037750	61.0
287215124	45.746280	-60.048040	54.0	287233343	45.860710	-60.005390	48.0	288011208	45.743570	-60.038200	73.0
287215224	45.745190	-60.048490	53.0	287233408	45.861750	-60.004560	48.0	288011305	45.742380	-60.038630	80.0
287215324	45.744080	-60.048880	57.0	287233508	45.862110	-60.003910	48.0	288011408	45.741120	-60.039060	81.0
287215424	45.742960	-60.049270	59.0	287233713	45.861700	-60.001450	49.0	288011513	45.739760	-60.039570	83.0
287215529	45.741740	-60.049570	62.0	287233818	45.860710	-60.000080	51.0	288011612	45.738540	-60.040010	86.0
287215629	45.740600	-60.049850	72.0	287233923	45.859350	-59.999810	54.0	288011716	45.737190	-60.040510	88.0
287215730	45.739430	-60.050170	75.0	287234028	45.857810	-59.999050	56.0	288011817	45.735920	-60.041000	90.0
287215829	45.738310	-60.050550	61.0	287234133	45.856240	-59.998290	56.0	288011917	45.734700	-60.041410	90.0
287215929	45.737180	-60.050960	58.0	287234233	45.854860	-59.997290	58.0	288012022	45.733540	-60.042320	90.0
287220029	45.736060	-60.051350	56.0	287234333	45.853620	-59.996510	59.0	288012126	45.732360	-60.042870	91.0
287220134	45.734820	-60.051570	54.0	287234433	45.852470	-60.000350	59.0	288012232	45.731250	-60.042200	90.0
287220234	45.733880	-60.051110	53.0	287234533	45.851200	-60.001130	59.0	288012332	45.730520	-60.040580	90.0
287220334	45.733230	-60.050000	58.0	287234633	45.849860	-60.001740	59.0	288012437	45.730330	-60.038310	90.0
287220439	45.733000	-60.048320	70.0	287234733	45.848520	-60.002180	59.0	288012542	45.731140	-60.036530	89.0
287220540	45.733380	-60.046660	78.0	287234833	45.847130	-60.002620	59.0	288012647	45.732440	-60.036030	89.0
287220641	45.734360	-60.045580	73.0	287234933	45.845740	-60.003130	60.0	288012757	45.734120	-60.036050	89.0
287220741	45.735760	-60.045430	67.0	287235033	45.844290	-60.003460	60.0	288012902	45.735890	-60.035570	89.0
287220841	45.737450	-60.045660	65.0	287235133	45.842890	-60.003790	60.0	288013007	45.737670	-60.035030	90.0
287220941	45.739180	-60.045310	68.0	287235233	45.841470	-60.004160	60.0	288013112	45.739420	-60.034310	72.0
287221041	45.740870	-60.044620	76.0	287235333	45.840080	-60.004650	61.0	288013217	45.741130	-60.033610	62.0
287221141	45.742580	-60.043970	0.0	287235433	45.838730	-60.005230	61.0	288013322	45.742810	-60.033020	66.0
287221241	45.744140	-60.043450	61.0	287235533	45.837300	-60.005720	62.0	288013427	45.744460	-60.032950	66.0
287221341	45.745640	-60.042980	59.0	287235633	45.835930	-60.006160	64.0	288013532	45.746120	-60.031890	162.0
287221441	45.747110	-60.042540	55.0	287235733	45.834600	-60.006630	64.0	288013637	45.747660	-60.031490	64.0
287221541	45.748540	-60.041900	57.0	287235833	45.833240	-60.007030	65.0	288013742	45.749230	-60.030920	63.0
287221641	45.749950	-60.041260	56.0	287235933	45.831880	-60.007430	65.0	288013842	45.750650	-60.030460	64.0
287221741	45.751380	-60.040710	57.0					288013947	45.752260	-60.029950	63.0
287221841	45.752820	-60.040200	60.0					288014047	45.753700	-60.029420	61.0
287221941	45.754270	-60.039730	59.0					288014147	45.755190	-60.028830	59.0
287222041	45.755740	-60.039310	59.0					288014247	45.756660	-60.028250	65.0
287222141	45.757180	-60.038930	61.0					288014347	45.758130	-60.027660	67.0
287222241	45.758600	-60.038550	60.0					288014447	45.759620	-60.027130	63.0
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287222441	45.761470	-60.037660	54.0					288014647	45.762640	-60.026130	64.0
287222541	45.762860	-60.037150	53.0					288014747	45.764110	-60.025640	63.0
287222641	45.764320	-60.036660	51.0					288014847	45.765630	-60.025200	58.0
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287222941	45.768590	-60.034850	46.0					288015147	45.770070	-60.023700	51.0
287223041	45.769990	-60.034290	43.0					288015247	45.771580	-60.023190	49.0
287223141	45.771420	-60.033840	43.0					288015347	45.773010	-60.022690	52.0
287223241	45.772810	-60.033380	49.0					288015447	45.774450	-60.022170	53.0
287223341	45.774220	-60.032930	51.0					288015547	45.775920	-60.021690	54.0
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287223541	45.777020	-60.032020	51.0					288015747	45.778790	-60.020500	55.0
287223641	45.778400	-60.031530	52.0					288015847	45.780270	-60.019910	55.0
287223741	45.779800	-60.031070	53.0					288015947	45.781780	-60.019400	57.0
287223841	45.781190	-60.030590	54.0					288020047	45.783320	-60.018910	59.0
287223941	45.782620	-60.030160	53.0					288020147	45.784820	-60.018380	60.0
287224041	45.784070	-60.029860	51.0					288020247	45.786320	-60.017950	64.0
287224141	45.785520	-60.029430	50.0					288020347	45.787840	-60.017450	64.0
287224241	45.786960	-60.029030	47.0					288020447	45.789310	-60.016960	62.0
287224341	45.788550	-60.028590	44.0					288020547	45.790810	-60.016450	58.0
287224441	45.789990	-60.028030	46.0					288020647	45.792330	-60.015960	53.0
287224541	45.791400	-60.027460	46.0					288020747	45.793840	-60.015460	54.0
287224650	45.792850	-60.027010	44.0					288020847	45.795370	-60.014900	50.0
287224749	45.794270	-60.026470	44.0					288020947	45.796910	-60.014410	54.0
287224849	45.795700	-60.025860	40.0					288021047	45.798420	-60.013900	51.0
287224949	45.797090	-60.025240	38.0					288021147	45.799950	-60.013420	54.0
287225050	45.798610	-60.024690	33.0					288021247	45.801430	-60.012960	55.0
287225154	45.800150	-60.024140	37.0					288021347	45.802870	-60.012510	54.0
287225254	45.801610	-60.023640	39.0					288021447	45.804280	-60.011910	54.0
287225354	45.803070	-60.023180	38.0					288021547	45.805770	-60.011270	52.0
287225455	45.804580	-60.022620	36.0</								





288073955	45.772040	-59.966420	92.0	288092249	45.816170	-59.940210	41.0	288211233	45.853750	-59.969620	65.0
288074059	45.770580	-59.966950	96.0	288092349	45.814710	-59.940460	48.0	288211334	45.853430	-59.971480	65.0
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288074259	45.767830	-59.967980	100.0	288092549	45.811990	-59.941120	54.0	288211533	45.852760	-59.975240	64.0
288074400	45.766450	-59.968420	101.0	288092649	45.810730	-59.941570	53.0	288211634	45.852380	-59.977130	65.0
288074459	45.765080	-59.968980	98.0	288092750	45.809510	-59.942020	53.0	288211734	45.852010	-59.979050	64.0
288074600	45.763730	-59.969500	94.0	288092849	45.808340	-59.942480	52.0	288211833	45.851690	-59.981010	64.0
288074659	45.762320	-59.969950	94.0	288092949	45.807150	-59.942940	50.0	288211934	45.851330	-59.982960	64.0
288074759	45.760950	-59.970430	95.0	288093049	45.805980	-59.943470	50.0	288212030	45.850980	-59.984790	64.0
288074859	45.759580	-59.970890	95.0	288093149	45.804800	-59.943810	50.0	288212134	45.850560	-59.986690	64.0
288074959	45.758230	-59.971370	95.0	288093249	45.803640	-59.944150	52.0	288212234	45.850190	-59.988590	63.0
288075059	45.756900	-59.971920	96.0	288093349	45.802480	-59.944540	53.0	288212334	45.849880	-59.990890	63.0
288075159	45.755580	-59.972490	96.0	288093449	45.801320	-59.944920	56.0	288212434	45.849570	-59.992890	62.0
288075259	45.754270	-59.972990	95.0	288093549	45.800160	-59.945410	56.0	288212534	45.849230	-59.994860	61.0
288075359	45.752940	-59.973410	97.0	288093649	45.799020	-59.945930	56.0	288212634	45.848850	-59.996820	60.0
288075457	45.751670	-59.973890	94.0	288093749	45.797850	-59.946350	56.0	288212733	45.848450	-59.998790	60.0
288075601	45.750230	-59.974400	96.0	288093849	45.796680	-59.946740	58.0	288212833	45.848060	-60.000740	60.0
288075701	45.748890	-59.974790	99.0	288093949	45.795510	-59.947120	61.0	288212934	45.847700	-60.002700	60.0
288075801	45.747570	-59.975190	96.0	288094049	45.794340	-59.947460	64.0	288213034	45.847340	-60.004670	59.0
288075901	45.746240	-59.975770	98.0	288094149	45.793170	-59.947830	76.0	288213133	45.846950	-60.006640	59.0
288080001	45.744920	-59.976350	99.0	288094249	45.792000	-59.948270	87.0	288213233	45.846550	-60.008560	59.0
288080101	45.743600	-59.976730	99.0	288094349	45.790800	-59.948700	97.0	288213330	45.846260	-60.010420	59.0
288080201	45.742280	-59.977120	100.0	288094449	45.789590	-59.949190	103.0	288213434	45.845980	-60.012510	58.0
288080301	45.740930	-59.977630	102.0	288094549	45.788360	-59.949680	93.0	288213533	45.845680	-60.014470	58.0
288080401	45.739650	-59.978170	96.0	288094649	45.787120	-59.950140	91.0	288213633	45.845320	-60.016350	58.0
288080501	45.738290	-59.978790	98.0	288094749	45.785880	-59.950570	88.0	288213734	45.844910	-60.018300	58.0
288080601	45.736950	-59.979440	99.0	288094849	45.784650	-59.951020	76.0	288213833	45.844520	-60.020200	58.0
288080701	45.735670	-59.980140	97.0	288094949	45.783410	-59.951520	69.0	288213933	45.844120	-60.022150	58.0
288080809	45.734200	-59.980550	97.0	288095049	45.782170	-59.952010	72.0	288214034	45.843770	-60.024100	58.0
288080909	45.733170	-59.979940	100.0	288095149	45.780950	-59.952490	77.0	288214134	45.843480	-60.026060	57.0
288081009	45.732590	-59.978950	103.0	288095249	45.779720	-59.952870	82.0	288214234	45.843140	-60.028020	57.0
288081109	45.732370	-59.977770	104.0	288095349	45.778490	-59.953210	85.0	288214334	45.842780	-60.029950	57.0
288081209	45.732590	-59.976330	105.0	288095448	45.777290	-59.953640	89.0	288214434	45.842380	-60.031910	57.0
288081309	45.733410	-59.975060	105.0	288095548	45.776100	-59.954130	94.0	288214533	45.842030	-60.033860	58.0
288081409	45.734670	-59.974590	0.0	288095648	45.774910	-59.954660	95.0	288214633	45.841720	-60.035790	59.0
288081509	45.736120	-59.974350	104.0	288095748	45.773710	-59.955110	96.0	288214733	45.841410	-60.037740	59.0
288081609	45.737590	-59.973910	103.0	288095848	45.772500	-59.955490	95.0	288214834	45.841070	-60.039750	59.0
288081709	45.739030	-59.973420	102.0	288095948	45.771310	-59.955920	95.0	288214934	45.840740	-60.041710	57.0
288081809	45.740300	-59.972870	101.0	288100048	45.770120	-59.956410	96.0	288215033	45.840380	-60.043640	56.0
288081909	45.741570	-59.972320	100.0	288100148	45.768930	-59.956870	96.0	288215139	45.839960	-60.045810	50.0
288082009	45.742910	-59.971970	97.0	288100248	45.767750	-59.957340	95.0	288215241	45.839540	-60.047830	49.0
288082109	45.744220	-59.971510	98.0	288100349	45.766570	-59.957790	95.0	288215342	45.839130	-60.049800	48.0
288082209	45.745500	-59.970920	101.0	288100448	45.765400	-59.958180	95.0	288215441	45.838780	-60.051720	46.0
288082310	45.746880	-59.970430	97.0	288100548	45.764210	-59.958580	95.0	288215542	45.838470	-60.053700	45.0
288082409	45.748270	-59.969870	96.0	288100648	45.763030	-59.958980	94.0	288215644	45.838100	-60.055640	43.0
288082509	45.749620	-59.969250	94.0	288100749	45.761840	-59.959380	94.0	288215759	45.837740	-60.058150	41.0
288082609	45.751000	-59.968660	91.0	288100848	45.760640	-59.959790	93.0	288215904	45.837380	-60.060250	39.0
288082709	45.752370	-59.968290	89.0	288100948	45.759460	-59.960200	94.0	288220004	45.837050	-60.062190	39.0
288082809	45.753660	-59.967810	92.0	288101048	45.758270	-59.960670	94.0	288220109	45.836660	-60.064280	38.0
288082909	45.754940	-59.967290	91.0	288101148	45.757080	-59.961060	93.0	288220213	45.836280	-60.066330	37.0
288083009	45.756240	-59.966780	93.0	288101248	45.755880	-59.961490	91.0	288220319	45.835880	-60.068440	35.0
288083109	45.757670	-59.966290	94.0	288202005	45.822570	-59.978260	57.0	288220424	45.835480	-60.070530	34.0
288083209	45.759100	-59.965790	94.0	288202110	45.823640	-59.977720	57.0	288220529	45.835100	-60.072620	33.0
288083309	45.760480	-59.965280	0.0	288202215	45.824790	-59.977030	54.0	288220633	45.834750	-60.074680	32.0
288083409	45.761750	-59.964770	94.0	288202320	45.826060	-59.976350	55.0	288220739	45.834350	-60.076780	32.0
288083509	45.763020	-59.964330	94.0	288202425	45.827270	-59.975720	51.0	288220842	45.833980	-60.078800	30.0
288083609	45.764340	-59.963790	95.0	288202530	45.828370	-59.975100	53.0	288220953	45.833590	-60.081060	29.0
288083709	45.765720	-59.963290	94.0	288202635	45.829440	-59.974540	53.0	288221058	45.833200	-60.083110	28.0
288083809	45.767140	-59.962720	96.0	288202739	45.830410	-59.974070	53.0	288221204	45.832800	-60.085190	24.0
288083909	45.768500	-59.962100	97.0	288202849	45.831450	-59.973390	56.0	288221308	45.832430	-60.087230	21.0
288084009	45.769890	-59.961560	97.0	288202955	45.832440	-59.972660	56.0	288221414	45.832060	-60.089330	21.0
288084109	45.771250	-59.961020	96.0	288203059	45.833520	-59.971870	59.0	288221519	45.831690	-60.091410	19.0
288084209	45.772580	-59.960670	97.0	288203204	45.834710	-59.971120	62.0	288221624	45.831330	-60.093500	18.0
288084310	45.773910	-59.960270	105.0	288203309	45.835920	-59.970290	70.0	288221728	45.830980	-60.095570	21.0
288084409	45.775180	-59.959810	90.0	288203415	45.837150	-59.969490	79.0	288221834	45.830580	-60.097670	20.0
288084509	45.776450	-59.959400	80.0	288203519	45.838340	-59.968640	77.0	288221939	45.830140	-60.099720	19.0
288084609	45.777720	-59.958930	75.0	288203625	45.839480	-59.967720	77.0	288222043	45.829740	-60.101570	18.0
288084706	45.778870	-59.958450	75.0	288203728	45.840680	-59.966720	78.0	288222154	45.829320	-60.103400	17.0
288084809	45.780190	-59.957950	81.0	288203834	45.841900	-59.965790	79.0	288222259	45.828960	-60.105310	14.0
288084909	45.781430	-59.957580	81.0	288203938	45.843070	-59.964800	80.0	288222403	45.828470	-60.107060	12.0
288085009	45.782680	-59.957210	76.0	288204049	45.844210	-59.963800	81.0	288222509	45.827960	-60.107780	15.0
288085109	45.783950	-59.956850	77.0	288204154	45.845150	-59.962830	80.0	288222613	45.827520	-60.107410	15.0
288085209	45.785250	-59.956490	85.0	288204259	45.846110	-59.961830	79.0	288222718	45.827140	-60.106120	15.0
288085310	45.786510	-59.956120	89.0	288204364	45.847070	-59.960870	76.0	288222823	45.826760	-60.104810	18.0
288085409	45.787710	-59.955640	92.0	288204469	45.848030	-59.959910	76.0	288222929	45.826370	-60.102010	18.0
288085509	45.788910	-59.955050	108.0	288204574	45.849000	-59.958950	72.0	288223033	45.825980	-60.100090	21.0
288085609	45.790070	-59.954400	97.0	288204679	45.849970	-59.958000	70.0	288223139	45.825600	-60.097890	22.0
288085709	45.791290	-59.953770	85.0	288204784	45.850940	-59.957060	69.0	288223243	45.825220	-60.095710	20.0

288225833	45.843270	-60.044250	54.0	289004023	45.846220	-60.045610	50.0	289022502	45.865170	-59.980370	46.0
288225933	45.843650	-60.042370	52.0	289004127	45.845810	-60.047810	50.0	289022607	45.865490	-59.978520	48.0
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288230143	45.844410	-60.038580	56.0	289004337	45.844970	-60.052300	47.0	289022816	45.866390	-59.974570	49.0
288230252	45.844850	-60.036550	58.0	289004443	45.844600	-60.054580	47.0	289022922	45.866830	-59.972450	49.0
288230352	45.845200	-60.034740	0.0	289004548	45.844220	-60.056820	47.0	289023027	45.867230	-59.970260	49.0
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288230653	45.846280	-60.029730	56.0	289004848	45.843120	-60.063090	41.0	289023342	45.868580	-59.963480	50.0
288230753	45.846520	-60.027970	0.0	289004947	45.842700	-60.065130	41.0	289023446	45.867810	-59.961990	52.0
288230852	45.846760	-60.026150	57.0	289005048	45.842250	-60.067180	40.0	289023552	45.866480	-59.961360	56.0
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288231053	45.847390	-60.022710	57.0	289005247	45.841410	-60.071310	39.0	289023807	45.862840	-59.961180	59.0
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288231552	45.848840	-60.014390	0.0	289005802	45.839500	-60.082320	33.0	289024327	45.855830	-59.958820	67.0
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288231953	45.849980	-60.007670	59.0	289010207	45.837870	-60.090870	31.0	289024742	45.849540	-59.956750	75.0
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				289014512	45.823060	-60.047980	46.0	289033126	45.792380	-59.942810	96.0
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289000312	45.860440	-59.969690	56.0	289014812	45.824000	-60.042630	46.0	289033426	45.788440	-59.944250	94.0
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289001623											

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289041051	45.737950	-59.962730	98.0	289055540	45.789980	-59.932870	81.0	289074124	45.807110	-59.921350	29.0
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289041936	45.728250	-59.965080	108.0	289060420	45.778580	-59.936970	96.0	289074929	45.814490	-59.916880	27.0
289042041	45.728220	-59.963010	108.0	289060525	45.777190	-59.937510	96.0	289075034	45.813160	-59.915860	24.0
289042146	45.728930	-59.961180	109.0	289060635	45.775660	-59.938000	97.0	289075139	45.811750	-59.914810	21.0
289042251	45.730270	-59.959950	105.0	289060740	45.774240	-59.938500	96.0	289075239	45.810400	-59.914640	22.0
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289042716	45.736540	-59.957790	98.0	289061159	45.768570	-59.940590	96.0	289075654	45.804650	-59.916940	39.0
289042821	45.738000	-59.957370	99.0	289061310	45.767020	-59.941170	96.0	289081903	45.774720	-59.927530	99.0
289042926	45.739490	-59.956750	102.0	289061415	45.765560	-59.941660	96.0	289082014	45.773190	-59.927950	100.0
289043031	45.741020	-59.956050	100.0	289061520	45.764030	-59.942250	96.0	289082119	45.771850	-59.928620	99.0
289043136	45.742600	-59.955440	98.0	289061625	45.762490	-59.942870	97.0	289082224	45.770380	-59.929100	100.0
289043241	45.744190	-59.954960	94.0	289061730	45.760980	-59.943530	96.0	289082329	45.768900	-59.929680	98.0
289043346	45.745740	-59.954460	91.0	289061835	45.759400	-59.944160	94.0	289082434	45.767470	-59.930270	92.0
289043451	45.747280	-59.953920	90.0	289061940	45.757920	-59.944660	91.0	289082539	45.766040	-59.930770	89.0
289043556	45.748820	-59.953320	92.0	289062045	45.756440	-59.945080	90.0	289082644	45.764600	-59.931260	88.0
289043706	45.750470	-59.952640	90.0	289062150	45.754990	-59.945610	90.0	289082749	45.763120	-59.931790	88.0
289043811	45.752000	-59.951980	86.0	289062255	45.753480	-59.946230	86.0	289082849	45.761740	-59.932280	91.0
289043916	45.753540	-59.951380	86.0	289062359	45.752030	-59.946780	85.0	289082949	45.760390	-59.932810	94.0
289044016	45.754970	-59.950960	90.0	289062510	45.750340	-59.947360	86.0	289083049	45.759060	-59.933390	95.0
289044121	45.756510	-59.950420	93.0	289062615	45.748790	-59.947880	92.0	289083149	45.757770	-59.933900	95.0
289044226	45.758040	-59.949860	92.0	289062720	45.747240	-59.948500	97.0	289083245	45.756590	-59.934380	97.0
289044331	45.759550	-59.949230	93.0	289062825	45.745690	-59.949110	103.0	289083349	45.755110	-59.934950	98.0
289044436	45.761040	-59.948560	93.0	289062930	45.744170	-59.949820	100.0	289083449	45.753670	-59.935440	95.0
289044541	45.762540	-59.947910	94.0	289063035	45.742590	-59.950350	101.0	289083549	45.752280	-59.935960	98.0
289044646	45.764070	-59.947410	94.0	289063140	45.741020	-59.950840	101.0	289083649	45.750920	-59.936450	98.0
289044751	45.765610	-59.946950	94.0	289063245	45.739440	-59.951280	101.0	289083749	45.749520	-59.936950	97.0
289044856	45.767120	-59.946400	95.0	289063350	45.737920	-59.951960	101.0	289083849	45.748190	-59.937500	96.0
289045006	45.768760	-59.945790	95.0	289063455	45.736360	-59.952570	102.0	289083949	45.746830	-59.937980	99.0
289045111	45.770270	-59.945210	95.0	289063600	45.734840	-59.953080	105.0	289084049	45.745470	-59.938410	102.0
289045216	45.771790	-59.944770	96.0	289063710	45.733280	-59.9534020	107.0	289084149	45.744110	-59.938860	103.0
289045316	45.773160	-59.944360	95.0	289063815	45.732020	-59.953810	108.0	289084249	45.742790	-59.939310	105.0
289045416	45.774570	-59.943780	95.0	289063920	45.731120	-59.954680	108.0	289084349	45.741460	-59.939820	105.0
289045516	45.775920	-59.943140	95.0	289064025	45.729910	-59.955760	112.0	289084449	45.740150	-59.940360	106.0
289045621	45.777420	-59.942720	96.0	289064130	45.728830	-59.956740	110.0	289084549	45.738880	-59.940850	107.0
289045721	45.778800	-59.942180	95.0	289064235	45.728060	-59.956670	110.0	289084649	45.737520	-59.941300	0.0
289045821	45.780210	-59.941680	95.0	289064340	45.727490	-59.955300	110.0	289084749	45.736260	-59.941770	108.0
289045921	45.781630	-59.941270	92.0	289064445	45.727380	-59.955310	111.0	289084849	45.734980	-59.942230	110.0
289050021	45.783010	-59.940610	93.0	289064550	45.727980	-59.951790	111.0	289084949	45.733710	-59.942600	110.0
289050121	45.784410	-59.940050	93.0	289064655	45.729180	-59.950440	110.0	289085049	45.732430	-59.943030	111.0
289050221	45.785820	-59.939610	92.0	289064800	45.730770	-59.949650	110.0	289085224	45.730360	-59.943710	111.0
289050321	45.787220	-59.939140	91.0	289064901	45.732060	-59.948960	109.0	289085324	45.729120	-59.943880	113.0
289050421	45.788620	-59.938630	89.0	289065010	45.733320	-59.948110	108.0	289085424	45.727860	-59.944780	0.0
289050521	45.790020	-59.938080	87.0	289065115	45.734720	-59.947720	107.0	289085524	45.726750	-59.944240	95.0
289050621	45.791420	-59.937630	87.0	289065220	45.736220	-59.947120	106.0	289085624	45.726090	-59.943050	0.0
289050721	45.792780	-59.937210	87.0	289065320	45.737630	-59.946500	105.0	289085724	45.725960	-59.941340	3.0
289050821	45.794140	-59.936800	90.0	289065420	45.739070	-59.945880	105.0	289085824	45.726520	-59.939970	0.0
289050921	45.795500	-59.936400	78.0	289065520	45.740580	-59.945270	103.0	289085924	45.727700	-59.939400	3.0
289051021	45.796840	-59.935890	66.0	289065620	45.742110	-59.944640	103.0	289090024	45.729240	-59.939210	3.0
289051121	45.798170	-59.935360	49.0	289065720	45.743690	-59.944140	101.0	289090124	45.730700	-59.938570	113.0
289051221	45.799500	-59.934840	36.0	289065820	45.745200	-59.943680	100.0	289090224	45.732210	-59.937880	111.0
289051320	45.800860	-59.934340	36.0	289065920	45.746540	-59.943280	99.0	289090324	45.733750	-59.937310	111.0
289051421	45.802210	-59.933860	41.0	289070020	45.747830	-59.942910	94.0	289090424	45.735290	-59.936650	109.0
289051521	45.803560	-59.933470	0.0	289070120	45.749060	-59.942530	91.0	289090524	45.736800	-59.936080	109.0
289051620	45.804890	-59.933090	41.0	289070220	45.750250	-59.942090	92.0	289090624	45.738300	-59.935640	109.0
289051720	45.806210	-59.932610	44.0	289070320	45.751480	-59.941530	92.0	289090724	45.739720	-59.935090	107.0
289051820	45.807510	-59.932100	45.0	289070420	45.752800	-59.941100	92.0	289090824	45.741120	-59.934580	0.0
289051920	45.808800	-59.931620	45.0	289070520	45.754180	-59.940660	89.0	289090924	45.742490	-59.933980	108.0
289052020	45.810090	-59.931190	44.0	289070620	45.755590	-59.940070	92.0	289091024	45.743870	-59.933420	106.0
289052120	45.811360	-59.930690	44.0	289070720	45.757040	-59.939560	182.0	289091124	45.745250	-59.932890	105.0
289052220	45.812690	-59.930270	39.0	289070820	45.758510	-59.939120	95.0	289091224	45.746650	-59.932330	105.0
289052320	45.814080	-59.930320	0.0	289070920	45.759950	-59.938500	95.0	289091324	45.748070	-59.931850	103.0
289052420	45.815400	-59.930990	42.0	289071020	45.761370	-59.937840	92.0	289091424	45.749500	-59.931590	103.0
289052520	45.816750	-59.931690	43.0	289071120	45.762800	-59.937230	89.0	289091524	45.750910	-59.931160	101.0
289052620	45.818130	-59.932180	41.0	289071220	45.764260	-59.936790	89.0	289091621	45.752240	-59.930610	93.0
289052720	45.819450	-59.932150	43.0	289071320	45.765740	-59.936290	89.0	289091724	45.753700	-59.930060	90.0
289052820	45.820610	-59.931580	43.0	289071420	45.767230	-59.935720	96.0	289091824	45.755100	-59.929500	91.0
289052920	45.821430	-59.930580	41.0	289071520	45.768730	-59.935190	100.0	289091924	45.756530	-59.928910	93.0
289053020	45.821690	-59.929310	42.0	289071620	45.770205	-59.934700	99.0	289092024			

289094518	45.793380	-59.915270	81.0	290031546	46.925700	-61.015020	95.0	290050724	46.775230	-61.033050	101.0
289094623	45.794940	-59.914800	75.0	290031648	46.924330	-61.015220	96.0	290050830	46.773730	-61.033010	95.0
289094728	45.796500	-59.914410	69.0	290031800	46.922790	-61.015490	96.0	290050934	46.772290	-61.032980	87.0
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289095148	45.802650	-59.912340	3.0	290032226	46.916780	-61.016720	96.0	290051352	46.766480	-61.033020	95.0
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289095503	45.807290	-59.910270	3.0	290032540	46.912470	-61.017610	97.0	290051714	46.761950	-61.033070	113.0
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289095718	45.810550	-59.909970	38.0	290032748	46.909520	-61.018070	97.0	290051924	46.759010	-61.033100	3.0
289095823	45.811820	-59.909360	42.0	290032960	46.907830	-61.018400	97.0	290052029	46.757540	-61.033070	4.0
289095928	45.812520	-59.909720	43.0	290033005	46.906290	-61.018800	97.0	290052135	46.756030	-61.033050	4.0
289100033	45.812210	-59.906220	43.0	290033110	46.904770	-61.019200	97.0	290052239	46.754590	-61.033050	4.0
289100138	45.810940	-59.904960	43.0	290033215	46.903300	-61.019480	97.0	290052345	46.753080	-61.033070	4.0
289100243	45.809360	-59.904730	46.0	290033321	46.901810	-61.019640	97.0	290052449	46.751610	-61.033050	4.0
289100348	45.807860	-59.905010	50.0	290033426	46.900370	-61.019910	98.0	290052552	46.750160	-61.033020	4.0
289100453	45.806550	-59.905260	51.0	290033530	46.898880	-61.020240	98.0	290052704	46.748530	-61.033020	3.0
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289100703	45.803920	-59.906200	51.0	290033740	46.895880	-61.020820	98.0	290052914	46.745540	-61.033120	4.0
289100808	45.802630	-59.906710	50.0	290033845	46.894410	-61.021110	98.0	290053019	46.744070	-61.033100	4.0
289100918	45.801230	-59.907360	42.0	290033949	46.893040	-61.021400	98.0	290053124	46.742580	-61.033100	3.0
289101023	45.799880	-59.907780	48.0	290034100	46.891370	-61.021700	98.0	290053230	46.741070	-61.033110	4.0
289101128	45.798500	-59.908070	57.0	290034205	46.889900	-61.022050	98.0	290053335	46.739570	-61.033150	4.0
289101233	45.797180	-59.908660	57.0	290034310	46.888480	-61.022370	98.0	290053439	46.738130	-61.033160	3.0
289101338	45.795830	-59.909340	73.0	290034416	46.887000	-61.022660	99.0	290053544	46.736640	-61.033100	4.0
289101443	45.794470	-59.909900	79.0	290034520	46.885560	-61.022870	99.0	290053653	46.735060	-61.033050	3.0
289101548	45.793080	-59.910320	87.0	290034626	46.884140	-61.023220	99.0	290053804	46.733460	-61.033100	3.0
289101653	45.791710	-59.910730	90.0	290034731	46.882710	-61.023540	99.0	290053910	46.731960	-61.033090	3.0
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289102008	45.787730	-59.912080	92.0	290035045	46.878780	-61.023790	99.0	290054225	46.727530	-61.033100	3.0
289102118	45.786330	-59.912630	94.0	290035149	46.877170	-61.024440	99.0	290054330	46.726050	-61.033150	4.0
289102223	45.784960	-59.913070	98.0	290035301	46.875600	-61.024670	100.0	290054434	46.724620	-61.033130	3.0
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289102433	45.782260	-59.914200	103.0	290035511	46.872840	-61.025210	100.0	290054645	46.721680	-61.033090	104.0
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289102638	45.779590	-59.915010	106.0	290035720	46.870120	-61.026130	100.0	290054853	46.718740	-61.033160	91.0
289102738	45.778340	-59.915470	106.0	290035826	46.868760	-61.026290	101.0	290055005	46.717130	-61.033130	83.0
289102838	45.777090	-59.915980	105.0	290035930	46.867300	-61.026320	101.0	290055109	46.715690	-61.033060	76.0
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289103238	45.772100	-59.918050	100.0	290040350	46.861510	-61.027510	104.0	290055529	46.709720	-61.033080	64.0
289103338	45.770820	-59.918550	100.0	290040500	46.859890	-61.027830	104.0	290055635	46.708170	-61.033090	61.0
289103438	45.769540	-59.919060	96.0	290040606	46.858380	-61.028120	105.0	290055739	46.706660	-61.033100	58.0
				290040710	46.856930	-61.028470	106.0	290055845	46.705080	-61.033100	56.0
				290040816	46.855450	-61.028820	107.0	290055950	46.703590	-61.033020	54.0
				290040920	46.854020	-61.029080	107.0	290060054	46.702070	-61.032950	53.0
				290041025	46.852570	-61.029230	109.0	290060204	46.700430	-61.032940	53.0
				290041131	46.851100	-61.029370	110.0	290060310	46.698920	-61.033040	53.0
				290041236	46.849680	-61.029630	111.0	290060414	46.697440	-61.033020	52.0
				290041341	46.848260	-61.029950	112.0	290060519	46.695920	-61.032890	51.0
				290041444	46.846870	-61.030200	3.0	290060625	46.694390	-61.032840	51.0
				290041550	46.845430	-61.030430	4.0	290060729	46.692940	-61.032790	50.0
				290041706	46.843800	-61.030910	3.0	290060835	46.691430	-61.032700	49.0
				290041810	46.842380	-61.031170	3.0	290060940	46.689960	-61.032660	50.0
				290041915	46.840930	-61.031350	4.0	290061040	46.688610	-61.032660	49.0
				290042025	46.839470	-61.031280	3.0	290061149	46.687040	-61.032730	48.0
				290042136	46.837730	-61.032090	4.0	290061254	46.685540	-61.032800	48.0
				290042246	46.836220	-61.032400	3.0	290061409	46.683820	-61.032850	0.0
				290042351	46.834760	-61.033100	3.0	290061519	46.682200	-61.032930	45.0
				290042511	46.832880	-61.033450	4.0	290061630	46.680590	-61.032870	44.0
				290042615	46.831340	-61.033570	4.0	290061740	46.678970	-61.032810	44.0
				290042726	46.829930	-61.033140	4.0	290061850	46.677410	-61.032780	43.0
				290042830	46.828490	-61.033260	3.0	290061954	46.676000	-61.032800	41.0
				290042935	46.826990	-61.033160	3.0	290062104	46.674440	-61.032900	40.0
				290043040	46.825510	-61.033260	3.0	290062204	46.673150	-61.032860	0.0
				290043150	46.823940	-61.033280	3.0	290062315	46.671600	-61.032820	39.0
				290043251	46.822530	-61.033350	3.0	290062420	46.670240	-61.032860	39.0
				290043405	46.820860	-61.033430	3.0	290062530	46.668710	-61.032880	39.0
				290043516	46.819230	-61.033380	3.0	290062635	46.667300	-61.032870	40.0
				290043621	46.817750	-61.033260	4.0	290062742	46.665850	-61.032910	40.0
				290043731	46.816150	-61.033200	3.0	290062850	46.664380	-61.032850	38.0
				290043835	46.814680	-61.033250	3.0	290062954	46.663010	-61.032770	39.0
				290043940	46.813190	-61.033290	3.0	290063055	46.661710	-61.032920	39.0
				290044050	46.811590	-61.033330	3.0	290063209	46.660310	-61.032540	36.0
				290044151	46.810190	-61.033320	4.0	290063320	46.659220	-61.030580	30.0
				290044305	46.808480	-61.033260	0.0	290063424	46.659340	-61.028510	26.0
				290044411	46.806980	-61.033240	101.0	290063534	46.660480	-61.026840	25.0
				290044515	46.805520	-61.033230	99.0	290063639	46.661850	-61.025710	27.0
				290044625	46.803910	-61.033240	104.0	290063750	46.663260	-61.024490	28.0
				290044729	46.802340	-61.033260	109.0	290063854	46.664470	-61.023620	29.0
				290044840	46.800830	-61.033340	4.0	290064010	46.666070	-61.022710	31.0
				290044944	46.799340	-61.033340	4.0	290064114	46.667660	-61.021750	30.0
				290045050	46.797870	-61.033210	4.0	290064224	46.669210	-61.020760	33.0

290065854	46.688760	-61.002350	27.0	290085034	46.816560	-60.878750	44.7	290104243	46.816760	-60.885100	50.0
290065956	46.690000	-61.001100	28.0	290085138	46.817860	-60.877670	44.4	290104347	46.815760	-60.886120	51.0
290070110	46.691410	-60.999750	0.0	290085244	46.819170	-60.876500	44.5	290104453	46.814740	-60.887210	51.0
290070214	46.692580	-60.998620	27.0	290085348	46.820440	-60.875260	44.5	290104557	46.813790	-60.888240	51.0
290070320	46.693810	-60.997530	27.0	290085453	46.821740	-60.874070	44.4	290104702	46.812770	-60.889200	51.0
290070423	46.695050	-60.996540	28.0	290085558	46.823010	-60.872850	44.2	290104804	46.811760	-60.890110	51.0
290070528	46.696250	-60.995500	28.0	290085700	46.824240	-60.871660	43.4	290104918	46.810600	-60.891170	51.0
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290070843	46.699660	-60.992020	28.0	290090024	46.828210	-60.867590	44.1	290105232	46.807500	-60.894020	50.0
290070948	46.700800	-60.990940	30.0	290090128	46.829500	-60.866300	43.2	290105338	46.806460	-60.895040	50.0
290071053	46.701890	-60.989790	30.0	290090234	46.830830	-60.865110	43.8	290105443	46.805450	-60.896020	50.0
290071156	46.703040	-60.988780	30.0	290090338	46.832180	-60.863930	44.9	290105548	46.804520	-60.896940	50.0
290071308	46.704340	-60.987670	32.0	290090443	46.833520	-60.862670	44.0	290105653	46.803610	-60.897800	50.0
290071413	46.705510	-60.986560	33.0	290090549	46.834850	-60.861370	43.4	290105758	46.802760	-60.898570	50.0
290071518	46.706700	-60.985460	33.0	290090654	46.836160	-60.860200	43.7	290105902	46.801960	-60.899340	50.0
290071623	46.707850	-60.984280	34.0	290090759	46.837480	-60.858990	46.2	290110004	46.801190	-60.900100	49.0
290071729	46.709000	-60.983110	33.0	290090901	46.838760	-60.857470	45.0	290110118	46.800230	-60.900970	49.0
290071831	46.710130	-60.982060	33.0	290091012	46.840270	-60.856150	44.5	290110223	46.799440	-60.901730	49.0
290071938	46.711290	-60.980920	34.0	290091118	46.841620	-60.854870	45.2	290110328	46.798540	-60.902550	49.0
290072043	46.712480	-60.979830	34.0	290091223	46.842950	-60.853490	43.0	290110432	46.797700	-60.903370	49.0
290072148	46.713700	-60.978690	33.0	290091328	46.844250	-60.852180	45.5	290110538	46.796820	-60.904220	49.0
290072250	46.714860	-60.977560	32.0	290091433	46.845560	-60.850830	45.6	290110643	46.795950	-60.905040	48.0
290072356	46.716110	-60.976340	32.0	290091538	46.846800	-60.849460	44.6	290110748	46.795060	-60.905850	48.0
290072509	46.717510	-60.975070	33.0	290091643	46.848100	-60.848170	44.9	290110853	46.794210	-60.906730	49.0
290072613	46.718730	-60.973840	34.0	290091748	46.849440	-60.846920	43.5	290110958	46.793320	-60.907640	49.0
290072719	46.719940	-60.972570	0.0	290091853	46.850730	-60.845680	47.1	290111063	46.792440	-60.908530	49.0
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290073243	46.726204	-60.966720	38.0	290092423	46.857380	-60.839370	46.6	290195223	46.719660	-60.964300	31.5
290073349	46.727290	-60.965480	38.0	290092527	46.858670	-60.838170	45.3	290195324	46.718430	-60.963840	28.1
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290073555	46.729980	-60.963260	37.2	290092738	46.861330	-60.835720	47.1	290195523	46.715920	-60.963240	26.6
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290074128	46.735870	-60.957100	38.0	290093263	46.867760	-60.829500	49.1	290200023	46.709190	-60.960870	21.0
290074234	46.737180	-60.955930	37.9	290093368	46.869160	-60.828160	49.3	290200123	46.707770	-60.960380	21.8
290074339	46.738410	-60.954550	37.9	290093473	46.870420	-60.826840	49.0	290200223	46.706390	-60.959890	19.1
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290074548	46.740750	-60.952150	37.4	290093683	46.873080	-60.824240	50.8	290200423	46.703590	-60.958910	20.0
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290074757	46.743000	-60.950020	37.7	290093893	46.875860	-60.821630	54.6	290200628	46.700910	-60.957930	18.4
290074908	46.744300	-60.948710	38.0	290093998	46.877280	-60.820220	55.4	290200728	46.699740	-60.957440	18.4
290075014	46.745600	-60.947540	38.3	290094103	46.878640	-60.818870	55.3	290200828	46.698570	-60.956950	16.7
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290075223	46.747970	-60.945130	39.0	290094313	46.881490	-60.816090	55.0	290201027	46.696230	-60.955960	19.6
290075328	46.749170	-60.943980	39.0	290094418	46.882940	-60.814700	54.1	290201128	46.695060	-60.955470	20.3
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290075538	46.751680	-60.941780	39.0	290094628	46.885840	-60.811920	52.8	290201327	46.692720	-60.954490	16.4
290075643	46.752910	-60.940520	39.7	290094733	46.887290	-60.810530	52.0	290201428	46.691550	-60.953990	17.1
290075748	46.754120	-60.939330	40.7	290094838	46.888740	-60.809140	52.5	290201528	46.690380	-60.953500	19.0
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290080954	46.768360	-60.925750	43.2	290100032	46.854080	-60.841820	49.5	290202633	46.677510	-60.948110	17.7
290081058	46.769650	-60.924450	45.4	290100137	46.852890	-60.840630	49.5	290202733	46.676340	-60.947620	18.3
290081209	46.770950	-60.923130	45.6	290100242	46.851700	-60.839440	49.5	290202833	46.675170	-60.947130	19.3
290081314	46.772210	-60.921950	47.9	290100348	46.850510	-60.838250	47.7	290202933	46.674000	-60.946640	19.8
290081418	46.773430	-60.920750	52.9	290100453	46.849320	-60.837060	49.1	290203033	46.672830	-60.946150	22.0
290081528	46.774680	-60.919320	53.2	290100558	46.848130	-60.835870	48.0	290203133	46.671660	-60.945660	25.4
290081639	46.776380	-60.917910	52.1	290100663	46.846940	-60.834680	49.2	290203233	46.670490	-61.001600	23.8
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290081853	46.779200	-60.915150	47.9	290100873	46.844560	-60.832300	48.0	290203432	46.668150	-61.000620	27.9
290082014	46.780810	-60.913550	44.8	290100978	46.843370	-60.831110	48.0	290203533	46.666980	-61.000130	25.7
290082119	46.782070	-60.912320	44.0	290101083	46.842180	-60.829920	49.4	290203632	46.665810	-61.009810	24.9
290082223	46.783300	-60.911120	44.3	290101188	46.840990	-60.828730	48.0	290203733	46.664640	-61.011510	26.3
290082333	46.784610	-60.909830	43.8	290101293	46.839800	-60.827540	48.8	290203833	46.663470	-61.013200	30.1
290082438	46.785860	-60.908730	43.1	29							

290210233	46.669110	-61.051160	47.2	290224331	46.693440	-61.235160	104.0	291002101	46.740650	-61.390200	0.0
290210333	46.669330	-61.052960	48.9	290224432	46.693700	-61.237030	113.0	291002201	46.741520	-61.391530	68.0
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290210633	46.670080	-61.058700	51.4	290224731	46.694460	-61.242520	97.0	291002459	46.744240	-61.395050	79.0
290210733	46.670310	-61.060670	52.3	290224831	46.694690	-61.244320	83.0	291002601	46.745220	-61.396230	69.0
290210833	46.670540	-61.062580	53.8	290224930	46.694900	-61.246170	84.0	291002701	46.746150	-61.397490	67.0
290210933	46.670840	-61.064490	54.0	290225031	46.695120	-61.248030	83.0	291002801	46.747030	-61.398660	68.0
290211033	46.671140	-61.066390	54.3	290225132	46.695350	-61.249930	77.0	291002900	46.747970	-61.399790	67.0
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290211233	46.671690	-61.070240	55.9	290225331	46.695830	-61.253590	75.0	291003101	46.749940	-61.402100	67.0
290211333	46.671950	-61.072180	2.7	290225432	46.696100	-61.255460	73.0	291003201	46.750870	-61.403370	67.0
290211433	46.672180	-61.074120	0.0	290225531	46.696310	-61.257220	71.0	291003300	46.751800	-61.404630	66.0
290211533	46.672420	-61.076080	55.9	290225632	46.696590	-61.259120	70.0	291003401	46.752800	-61.405980	65.0
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290211733	46.672920	-61.079970	0.0	290225837	46.697070	-61.262920	114.0	291003600	46.754740	-61.408660	65.0
290211833	46.673150	-61.081920	2.0	290225937	46.697280	-61.264730	223.0	291003701	46.755720	-61.409850	65.0
290211933	46.673390	-61.083860	2.2	290230037	46.697480	-61.266480	69.0	291003800	46.756690	-61.411180	64.0
290212033	46.673660	-61.085800	0.0	290230136	46.697720	-61.268180	69.0	291003901	46.757580	-61.412570	0.0
290212133	46.673920	-61.087710	0.0	290230237	46.697950	-61.269940	0.0	291004001	46.758480	-61.413810	65.0
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290212333	46.674470	-61.091500	0.0	290230437	46.698560	-61.273480	68.0	291004201	46.760330	-61.416400	64.0
290212433	46.674700	-61.093400	0.0	290230537	46.698850	-61.275220	68.0	291004306	46.761290	-61.417860	64.0
290212533	46.675080	-61.095310	0.0	290230637	46.699100	-61.276950	67.0	291004406	46.762190	-61.419190	64.0
290212633	46.675310	-61.097230	0.0	290230737	46.699360	-61.278790	67.0	291004506	46.763090	-61.420510	64.0
290212733	46.675560	-61.099160	0.0	290230837	46.699650	-61.280590	67.0	291004606	46.764000	-61.421800	64.0
290212833	46.675800	-61.101080	105.0	290230936	46.699770	-61.282440	67.0	291004706	46.764900	-61.423080	64.0
290212933	46.676010	-61.102950	106.0	290231037	46.699980	-61.284270	67.0	291004806	46.765780	-61.424410	65.0
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290213133	46.676400	-61.106570	106.0	290231237	46.700420	-61.287950	68.0	291005006	46.767590	-61.426940	64.0
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290213433	46.677000	-61.111890	108.0	290231537	46.701180	-61.293380	67.0	291005306	46.770430	-61.430270	63.0
290213533	46.677210	-61.113640	107.0	290231637	46.701450	-61.295210	67.0	291005406	46.771340	-61.431400	64.0
290213633	46.677400	-61.115390	172.0	290231737	46.701720	-61.297030	67.0	291005506	46.772290	-61.432560	64.0
290213733	46.677610	-61.117150	106.0	290231837	46.701980	-61.298860	66.0	291005606	46.773220	-61.433790	0.0
290213833	46.677860	-61.118880	105.0	290231937	46.702260	-61.300670	67.0	291005706	46.774140	-61.434980	64.0
290213933	46.678150	-61.120600	101.0	290232037	46.702510	-61.302500	66.0	291005806	46.775120	-61.436130	64.0
290214033	46.678410	-61.122340	0.0	290232137	46.702690	-61.304320	68.0	291005906	46.776080	-61.437340	64.0
290214133	46.678650	-61.124080	88.0	290232237	46.702840	-61.306130	67.0	291010006	46.777020	-61.438600	64.0
290214233	46.678900	-61.125820	86.0	290232337	46.703010	-61.307940	66.0	291010106	46.777960	-61.439810	64.0
290214333	46.679150	-61.127560	83.0	290232437	46.703240	-61.309730	66.0	291010206	46.778870	-61.440990	0.0
290214433	46.679410	-61.129310	78.0	290232537	46.703490	-61.311530	66.0	291010306	46.779770	-61.442140	64.0
290214533	46.679660	-61.131070	76.0	290232637	46.703730	-61.313350	66.0	291010406	46.780670	-61.443290	64.0
290214633	46.679880	-61.132860	76.0	290232737	46.703950	-61.315170	66.0	291010506	46.781550	-61.444440	63.0
290214733	46.680120	-61.134630	76.0	290232835	46.704220	-61.316910	66.0	291010606	46.782390	-61.445610	64.0
290214833	46.680320	-61.136400	74.0	290232937	46.704510	-61.318750	67.0	291010706	46.783260	-61.446760	63.0
290214933	46.680560	-61.138160	73.0	290233037	46.704770	-61.320530	67.0	291010806	46.784130	-61.447880	64.0
290215033	46.680780	-61.139920	73.0	290233137	46.705060	-61.322300	67.0	291010906	46.785050	-61.449030	64.0
290215133	46.681030	-61.141700	74.0	290233237	46.705340	-61.324100	66.0	291011006	46.785940	-61.450260	64.0
290215233	46.681210	-61.143460	94.0	290233337	46.705610	-61.325900	67.0	291011105	46.786880	-61.451510	63.0
290215333	46.681390	-61.145260	74.0	290233437	46.705870	-61.327700	67.0	291011206	46.787810	-61.452850	64.0
290215433	46.681570	-61.147010	71.0	290233537	46.706140	-61.329490	67.0	291011306	46.788710	-61.454150	63.0
290215533	46.681800	-61.148760	69.0	290233637	46.706400	-61.331270	66.0	291011406	46.789690	-61.455430	63.0
290215633	46.682040	-61.150540	69.0	290233737	46.706620	-61.333060	67.0	291011506	46.790650	-61.456720	64.0
290215733	46.682280	-61.152330	67.0	290233837	46.706850	-61.334830	67.0	291011606	46.791590	-61.457920	63.0
290215833	46.682540	-61.154110	65.0	290233937	46.707070	-61.336580	66.0	291011706	46.792520	-61.459200	63.0
290215933	46.682810	-61.155890	67.0	290234037	46.707280	-61.338340	67.0	291011806	46.793530	-61.460440	63.0
290220033	46.683070	-61.157700	66.0	290234133	46.707490	-61.339990	67.0	291011906	46.794440	-61.461690	63.0
290220133	46.683310	-61.159510	72.0	290234237	46.707700	-61.341840	67.0	291012006	46.795360	-61.463000	63.0
290220232	46.683510	-61.161320	76.0	290234337	46.707940	-61.343620	66.0	291012106	46.796280	-61.464320	62.0
290220333	46.683730	-61.163170	81.0	290234437	46.708160	-61.345390	67.0	291012206	46.797230	-61.465640	62.0
290220432	46.683980	-61.164970	84.0	290234537	46.708440	-61.347050	67.0	291012306	46.798170	-61.466910	62.0
290220533	46.684260	-61.166760	92.0	290234637	46.708970	-61.348820	67.0	291012406	46.799110	-61.468210	61.0
290220632	46.684500	-61.168570	95.0	290234737	46.709600	-61.349110	202.0	291012506	46.800060	-61.469500	61.0
290220732	46.684800	-61.170370	95.0	290234837	46.710200	-61.350030	67.0	291012606	46.801030	-61.470770	61.0
290220832	46.685040	-61.172180	96.0	290234937	46.710910	-61.350910	67.0	291012706	46.801950	-61.472000	61.0
290220932	46.685310	-61.173970	96.0	290235037	46.711750	-61.351860	67.0	291012806	46.802900	-61.473190	61.0
290221032	46.685590	-61.175770	96.0	290235137	46.712690	-61.352900	68.0	291012906	46.803910	-61.474380	60.0
290221132	46.685820	-61.177590	97.0	290235237	46.713670	-61.354020	68.0	291013006	46.804910	-61.475550	59.0
290221231	46.686050	-61.179370	96.0	290235337	46.714650	-61.355240	67.0	291013106	46.805930	-61.476760	59.0
290221332	46.686280	-61.181200	96.0	290235435	46.715580	-61.356410	67.0	291013206	46.806920	-61.478050	59.0
290221431	46.686480	-61.182980	97.0	290235537	46.716580	-61.357710	118.0	291013306	46.807860	-61.479350	59.0
290221531	46.686660	-61.184790	95.0	290235637	46.717560	-61.359020	66.0	291013406	46.808800	-61.480610	59.0
290221631	46.686880	-61.186590	95.0	290235737	46.718560	-61.360310	0.0	291013506	46.809720	-61.481970	60.0
290221732	46.687120	-61.188380	94.0	290235837	46.719510	-61.361570	65.0	291013606	46.810630	-61.483370	60.0
290221831	46.687370	-61.190110	93.0	290235937	46.720470	-61.362880	65.0	291013706	46.811530	-61.484780	60.0
290221932	46.687620	-61.191900	92.0					291013806	46.812450	-61.486160	60.0
290222031	46.687860	-61.193620	91.0								



291020206	46.836240	-61.517730	55.0	291034305	46.789850	-61.553130	62.0	291052414	46.739290	-61.409570	68.0
291020306	46.837220	-61.518990	55.0	291034405	46.788470	-61.552910	63.0	291052513	46.739210	-61.407500	107.0
291020406	46.838170	-61.520300	0.0	291034505	46.787070	-61.552700	63.0	291052614	46.739150	-61.405360	68.0
291020506	46.839140	-61.521570	52.0	291034605	46.785670	-61.552540	63.0	291052714	46.739100	-61.403280	68.0
291020606	46.840130	-61.522820	54.0	291034705	46.784260	-61.552490	63.0	291052814	46.739030	-61.401140	66.0
291020706	46.841150	-61.524130	54.0	291034805	46.782840	-61.552430	64.0	291052913	46.738910	-61.399100	223.0
291020806	46.842170	-61.525430	55.0	291034905	46.781430	-61.552350	63.0	291053014	46.738830	-61.396980	66.0
291020906	46.843210	-61.526790	56.0	291035005	46.780000	-61.552260	64.0	291053114	46.738790	-61.394870	66.0
291021006	46.844230	-61.528220	55.0	291035105	46.778570	-61.552250	65.0	291053214	46.738720	-61.392740	66.0
291021106	46.845200	-61.529710	62.0	291035205	46.777150	-61.552220	65.0	291053314	46.738620	-61.390610	65.0
291021206	46.846210	-61.531140	59.0	291035305	46.775710	-61.552200	65.0	291053419	46.738550	-61.388330	64.0
291021306	46.847260	-61.532540	57.0	291035401	46.774380	-61.552120	66.0	291053519	46.738460	-61.386330	64.0
291021405	46.848310	-61.533940	56.0	291035505	46.772850	-61.551950	66.0	291053619	46.738270	-61.384360	64.0
291021505	46.849320	-61.535380	54.0	291035605	46.771430	-61.551790	66.0	291053719	46.738230	-61.382460	63.0
291021605	46.850320	-61.536780	56.0	291035705	46.770010	-61.551650	67.0	291053815	46.738170	-61.380650	63.0
291021706	46.851340	-61.538150	0.0	291035805	46.768580	-61.551540	68.0	291053919	46.738020	-61.378450	64.0
291021805	46.852340	-61.539530	54.0	291035905	46.767160	-61.551530	68.0	291054019	46.737910	-61.376340	63.0
291021905	46.853360	-61.540890	0.0	291040005	46.765720	-61.551560	68.0	291054119	46.737890	-61.374360	63.0
291022005	46.854370	-61.542290	54.0	291040105	46.764290	-61.551420	69.0	291054219	46.737800	-61.372430	63.0
291022105	46.855380	-61.543660	55.0	291040205	46.762860	-61.551240	69.0	291054319	46.737720	-61.370570	63.0
291022205	46.856440	-61.544950	53.0	291040305	46.761460	-61.551090	69.0	291054419	46.737670	-61.368740	63.0
291022305	46.857510	-61.546250	51.0	291040405	46.760040	-61.550930	70.0	291054519	46.737660	-61.366910	64.0
291022405	46.858560	-61.547580	53.0	291040505	46.758630	-61.550840	70.0	291054619	46.737620	-61.365100	63.0
291022505	46.859630	-61.548880	53.0	291040605	46.757240	-61.550750	71.0	291054719	46.737540	-61.363150	64.0
291022605	46.860710	-61.550210	54.0	291040703	46.755910	-61.550750	71.0	291054819	46.737430	-61.361120	64.0
291022705	46.861790	-61.551560	62.0	291040805	46.754490	-61.550710	72.0	291054919	46.737340	-61.359170	65.0
291022805	46.862850	-61.552960	74.0	291040905	46.753120	-61.550560	72.0	291055019	46.737280	-61.357180	64.0
291022905	46.863910	-61.554470	68.0	291041005	46.751770	-61.550510	73.0	291055119	46.737210	-61.355180	65.0
291023005	46.864840	-61.556000	76.0	291041105	46.750440	-61.550420	74.0	291055219	46.737150	-61.353220	64.0
291023102	46.865880	-61.557470	76.0	291041205	46.749040	-61.550320	74.0	291055319	46.737090	-61.351290	65.0
291023204	46.866870	-61.559000	75.0	291041305	46.747750	-61.549940	75.0	291055419	46.737040	-61.349360	65.0
291023305	46.867900	-61.560460	72.0	291041405	46.746800	-61.549840	75.0	291055519	46.736960	-61.347400	65.0
291023405	46.868920	-61.561960	0.0	291041505	46.746090	-61.549720	74.0	291055619	46.736870	-61.345490	66.0
291023505	46.869930	-61.563460	68.0	291041605	46.745340	-61.549580	74.0	291055719	46.736760	-61.343590	65.0
291023605	46.870910	-61.564930	66.0	291041705	46.744750	-61.549310	73.0	291055819	46.736700	-61.341680	65.0
291023705	46.871960	-61.566440	65.0	291041805	46.744170	-61.549190	73.0	291055919	46.736640	-61.339750	65.0
291023805	46.873040	-61.567410	60.0	291041905	46.744670	-61.539920	72.0	291060017	46.736560	-61.337870	65.0
291023905	46.874130	-61.567370	57.0	291042005	46.744570	-61.537880	72.0	291060119	46.736510	-61.335880	65.0
291024005	46.874910	-61.566310	56.0	291042105	46.744640	-61.535940	71.0	291060219	46.736450	-61.333930	65.0
291024104	46.874990	-61.564550	57.0	291042205	46.744350	-61.533990	71.0	291060319	46.736370	-61.331940	66.0
291024205	46.874220	-61.562690	59.0	291042305	46.744270	-61.532000	71.0	291060419	46.736280	-61.329920	66.0
291024305	46.872930	-61.561160	63.0	291042404	46.744170	-61.529990	70.0	291060519	46.736230	-61.327840	65.0
291024401	46.871890	-61.559950	66.0	291042510	46.744060	-61.527790	70.0	291060619	46.736130	-61.325780	66.0
291024505	46.870740	-61.559230	67.0	291042610	46.743980	-61.525760	71.0	291060719	46.736060	-61.323780	66.0
291024605	46.869600	-61.559140	68.0	291042710	46.743810	-61.523710	70.0	291060819	46.735970	-61.321800	66.0
291024705	46.868400	-61.558930	70.0	291042810	46.743650	-61.521650	70.0	291060919	46.735890	-61.319870	66.0
291024805	46.867090	-61.558570	74.0	291042910	46.743510	-61.519570	69.0	291061019	46.735790	-61.317940	65.0
291024904	46.865590	-61.558400	77.0	291043010	46.743400	-61.517530	69.0	291061119	46.735650	-61.316020	67.0
291025005	46.864030	-61.558150	74.0	291043110	46.743300	-61.515500	69.0	291061219	46.735570	-61.314100	66.0
291025105	46.862570	-61.558050	72.0	291043209	46.743230	-61.513470	69.0	291061319	46.735460	-61.312110	66.0
291025205	46.861170	-61.558160	67.0	291043306	46.743160	-61.511570	68.0	291061419	46.735340	-61.310070	67.0
291025302	46.859890	-61.558010	55.0	291043409	46.743060	-61.509480	68.0	291061519	46.735260	-61.308040	66.0
291025405	46.858490	-61.557860	53.0	291043509	46.743030	-61.507480	69.0	291061619	46.735160	-61.305970	67.0
291025505	46.857110	-61.557760	53.0	291043609	46.743020	-61.505470	69.0	291061719	46.735120	-61.303880	67.0
291025605	46.855690	-61.557650	51.0	291043709	46.742980	-61.503450	68.0	291061819	46.735040	-61.301780	67.0
291025705	46.854250	-61.557560	54.0	291043809	46.742940	-61.501430	68.0	291061919	46.735000	-61.299700	68.0
291025805	46.852880	-61.557470	57.0	291043909	46.742890	-61.499460	68.0	291062019	46.734940	-61.297600	67.0
291025905	46.851330	-61.557380	56.0	291044009	46.742850	-61.497440	68.0	291062119	46.734790	-61.295490	68.0
291030005	46.849860	-61.557260	54.0	291044109	46.742780	-61.495440	68.0	291062219	46.734720	-61.293370	68.0
291030105	46.848400	-61.557050	52.0	291044214	46.742720	-61.493240	68.0	291062319	46.734630	-61.291270	69.0
291030205	46.846980	-61.556890	53.0	291044314	46.742670	-61.491160	68.0	291062419	46.734540	-61.289180	69.0
291030305	46.845590	-61.556850	54.0	291044414	46.742560	-61.489120	67.0	291062519	46.734450	-61.287060	69.0
291030405	46.844220	-61.556760	53.0	291044514	46.742500	-61.487130	67.0	291062619	46.734370	-61.284950	69.0
291030505	46.842890	-61.556620	54.0	291044613	46.742090	-61.485140	68.0	291062719	46.734320	-61.282810	68.0
291030602	46.841600	-61.556500	56.0	291044714	46.742070	-61.483100	67.0	291062819	46.734240	-61.280690	68.0
291030705	46.840160	-61.556430	58.0	291044814	46.742100	-61.481040	68.0	291062919	46.734150	-61.278590	69.0
291030805	46.838790	-61.556400	54.0	291044914	46.741990	-61.478940	66.0	291063019	46.734060	-61.276470	68.0
291030904	46.837390	-61.556320	55.0	291045014	46.741900	-61.476870	67.0	291063119	46.734000	-61.274330	66.0
291031005	46.835950	-61.556220	55.0	291045114	46.741830	-61.474610	67.0	291063219	46.733970	-61.272190	66.0
291031105	46.834530	-61.556140	55.0	291045214	46.741750	-61.472560	67.0	291063319	46.733860	-61.270070	64.0
291031205	46.833120	-61.556070	54.0	291045314	46.741680	-61.470600	67.0	291063419	46.733720	-61.268020	64.0
291031305	46.831700	-61.555990	54.0	291045414	46.741640	-61.468660	66.0	291063519	46.733600	-61.266030	64.0
291031405	46.830300	-61.555920	54.0	291045514	46.741620	-61.466590	66.0	291063619	46.733550	-61.264060	63.0
291031505	46.828890	-61.555850	54.0	291045614	46.741530	-61.464410	65.0	291063718	46.733510	-61.262110	64.0
291031605	46.827490	-61.555710	54.0	291045714	46.741410	-61.462250	65.0	291063819	46.733490	-61.260200	64.0
291031705	46.826100	-61.555540	55.0	291045814	46.741310	-61.460210	66.0	291063919	46.733420	-61.258340	63.0
291031805	46.824700	-61.555450	54.0	291045909	46.741280	-61.458390	66.0	291064019	46.733660	-61.256620	63.0
291031903	46.823350	-61.555380	55.0	291050014	46.741200	-61.456260	66.0	291064118	46.733900	-61.254820	65.0
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291070518	46.741890	-61.207160	72.0	291084622	46.776410	-61.003860	125.0	291201807	46.666080	-61.043190	44.0
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291070718	46.742550	-61.203190	72.0	291084822	46.776920	-60.999830	124.0	291202007	46.668350	-61.040910	43.0
291070818	46.742920	-61.201160	73.0	291084922	46.777260	-60.997910	122.0	291202107	46.669360	-61.039890	43.0
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291071418	46.744900	-61.188930	75.0	291085522	46.779510	-60.985400	113.0	291202707	46.676140	-61.033650	43.0
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291074923	46.756920	-61.119370	118.0	291093027	46.791420	-60.912600	49.0	291210207	46.716110	-60.994770	43.0
291075023	46.757200	-61.117510	120.0	291093127	46.791710	-60.910900	49.0	291210307	46.717320	-60.993650	43.0
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291081323	46.765000	-61.071620	89.0	291095426	46.764120	-60.936150	45.0	291212607	46.743180	-60.968910	57.0
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292080712	46.760350	-60.983620	68.0	292094811	46.684510	-61.069500	62.0	292112910	46.829940	-60.941470	119.0
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292080912	46.758020	-60.985720	68.0	292095011	46.687170	-61.066860	62.0	292113110	46.832770	-60.938870	118.0
292081012	46.756860	-60.986780	67.0	292095111	46.688470	-61.065510	61.0	292113210	46.834180	-60.937540	118.0
292081112	46.755710	-60.987870	67.0	292095211	46.689780	-61.064220	60.0	292113310	46.835590	-60.936200	118.0
292081212	46.754600	-60.989030	66.0	292095311	46.691080	-61.062930	60.0	292113410	46.836990	-60.934910	118.0
292081312	46.753510	-60.990210	66.0	292095411	46.692370	-61.061660	61.0	292113510	46.838410	-60.933590	118.0
292081412	46.752390	-60.991360	66.0	292095511	46.693690	-61.060380	63.0	292113610	46.839840	-60.932220	118.0
292081512	46.751230	-60.992460	65.0	292095609	46.695000	-61.059120	65.0	292113710	46.841220	-60.930810	117.0
292081612	46.750070	-60.993540	64.0	292095711	46.696500	-61.057900	67.0	292113810	46.842580	-60.929410	116.0
292081712	46.748890	-60.994580	63.0	292095811	46.697940	-61.056690	70.0	292113909	46.843900	-60.928050	117.0
292081812	46.747750	-60.995700	62.0	292095911	46.699380	-61.055350	73.0	292114010	46.845250	-60.926700	118.0
292081912	46.746640	-60.996870	60.0	292100011	46.700790	-61.053940	77.0	292114110	46.846610	-60.925290	119.0
292082012	46.745510	-60.998030	59.0	292100111	46.702190	-61.052470	80.0	292114210	46.847960	-60.923930	120.0
292082112	46.744340	-60.999080	58.0	292100211	46.703580	-61.050990	84.0	292114310	46.849320	-60.922550	119.0
292082212	46.743180	-61.000120	56.0	292100311	46.704990	-61.049530	89.0	292114410	46.850650	-60.921210	118.0
292082312	46.742070	-61.001220	59.0	292100411	46.706390	-61.048120	92.0	292114510	46.852010	-60.919940	119.0
292082412	46.740990	-61.002340	61.0	292100511	46.707810	-61.046750	94.0	292114610	46.853510	-60.918690	120.0
292082512	46.739860	-61.003450	63.0	292100611	46.709250	-61.045380	97.0	292114710	46.854910	-60.917430	121.0
292082611	46.738730	-61.004570	63.0	292100711	46.710720	-61.044000	99.0	292114810	46.856290	-60.916160	121.0
292082712	46.737590	-61.005660	63.0	292100811	46.712190	-61.042780	101.0	292114910	46.857710	-60.914850	121.0
292082811	46.736480	-61.006720	63.0	292100911	46.713630	-61.041420	103.0	292115010	46.859090	-60.913570	121.0
292082911	46.735370	-61.007780	62.0	292101011	46.715070	-61.040040	105.0	292115110	46.860470	-60.912200	121.0
292083011	46.734280	-61.008820	62.0	292101111	46.716500	-61.038630	105.0	292115210	46.861870	-60.910820	122.0
292083111	46.733180	-61.009850	61.0	292101211	46.717900	-61.037210	105.0	292115310	46.863250	-60.909480	122.0
292083211	46.732090	-61.010880	61.0	292101308	46.719240	-61.035870	106.0	292115410	46.864640	-60.908160	122.0
292083311	46.731000	-61.011900	61.0	292101411	46.720750	-61.034450	106.0	292115510	46.865980	-60.906800	122.0
292083411	46.729900	-61.012920	61.0	292101511	46.722200	-61.033150	108.0	292115610	46.867340	-60.905440	122.0
292083511	46.728840	-61.014000	61.0	292101611	46.723640	-61.031800	107.0	292115710	46.868720	-60.904080	122.0
292083611	46.727820	-61.015100	61.0	292101711	46.725050	-61.030410	107.0	292115810	46.870110	-60.902760	122.0
292083711	46.726790	-61.016170	61.0	292101811	46.726440	-61.028960	106.0	292115910	46.871480	-60.901390	122.0
292083809	46.725780	-61.017170	61.0	292101911	46.727840	-61.027570	105.0	292120010	46.872840	-60.899990	122.0
292083911	46.724700	-61.018230	62.0	292102011	46.729270	-61.026240	104.0	292120110	46.874190	-60.898570	122.0
292084011	46.723620	-61.019190	61.0	292102111	46.730700	-61.024890	102.0	292120210	46.875560	-60.897240	122.0
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292084211	46.721430	-61.021080	61.0	292102311	46.733520	-61.022180	97.0	292120410	46.878310	-60.894580	122.0
292084311	46.720390	-61.022110	61.0	292102411	46.734940	-61.020810	94.0	292120510	46.879690	-60.893260	122.0
292084411	46.719350	-61.023140	62.0	292102511	46.736340	-61.020020	95.0	292120610	46.881080	-60.891950	122.0
292084511	46.718300	-61.024170	62.0	292102610	46.737870	-61.020000	98.0	292120710	46.882470	-60.890660	121.0
292084611	46.717250	-61.025210	62.0	292102711	46.739300	-61.020420	108.0	292120810	46.883870	-60.889370	121.0
292084711	46.716220	-61.026270	62.0	292102811	46.740680	-61.021070	120.0	292120910	46.885270	-60.888140	121.0
292084811	46.715180	-61.027310	62.0	292102911	46.742020	-61.021910	125.0	292121010	46.886650	-60.886970	121.0
292084911	46.714140	-61.028330	62.0	292103011	46.743520	-61.022380	125.0	292121110	46.888030	-60.885540	121.0
292085011	46.713090	-61.029320	62.0	292103111	46.745090	-61.022360	126.0	292121210	46.889420	-60.884050	121.0
292085108	46.712100	-61.030260	62.0	292103210	46.746630	-61.021480	126.0	292121310	46.890800	-60.882630	121.0
292085211	46.711040	-61.031310	62.0	292103310	46.748150	-61.020200	126.0	292121410	46.892180	-60.881230	121.0
292085311	46.710030	-61.032340	63.0	292103410	46.749680	-61.019070	126.0	292121510	46.893540	-60.879830	120.0
292085411	46.709000	-61.033340	63.0	292103511	46.751170	-61.017650	126.0	292121610	46.894930	-60.878480	120.0
292085511	46.707960	-61.034340	62.0	292103611	46.752670	-61.016180	127.0	292222557	46.307010	-61.601830	60.0
292085611	46.706910	-61.035300	62.0	292103711	46.754190	-61.014700	127.0	292222657	46.306120	-61.601500	60.0
292085711	46.705840	-61.036240	62.0	292103810	46.755730	-61.013290	127.0	292222757	46.305230	-61.600990	61.0
292085811	46.704800	-61.037220	61.0	292103910	46.757280	-61.011910	126.0	292222855	46.304330	-61.600460	61.0
292085911	46.703780	-61.038230	61.0	292104010	46.758820	-61.010460	126.0	292222957	46.303410	-61.599990	60.0
292090011	46.702740	-61.039190	61.0	292104110	46.760340	-61.009250	125.0	292223058	46.302400	-61.599500	60.0
292090111	46.701700	-61.040130	60.0	292104210	46.761870	-61.007990	124.0	292223157	46.301350	-61.599000	60.0
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292090311	46.699700	-61.042140	60.0	292104410	46.764960	-61.004470	123.0	292223358	46.299050	-61.597910	60.0
292090410	46.698730	-61.043110	60.0	292104510	46.766510	-61.003010	123.0	292223458	46.297880	-61.597330	59.0
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292090811	46.694710	-61.047010	60.0	292104910	46.772500	-60.997080	118.0	292223858	46.292760	-61.594600	58.0
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292091011	46.692690	-61.048890	60.0	292105110	46.775400	-60.994140	116.0	292224058	46.290060	-61.593250	58.0
292091111	46.691700	-61.049850	60.0	292105210	46.776860	-60.992730	116.0	292224157	46.288730	-61.592590	57.0
292091211	46.690740	-61.050860	60.0	292105310	46.778320	-60.991330	116.0	292224257	46.287410	-61.591910	56.0
292091309	46.689810	-61.051850	60.0	292105410	46.779770	-60.989990	116.0	292224358	46.286000	-61.591190	57.0
292091411	46.688810	-61.052930	60.0	292105510	46.781280	-60.988630	117.0	292224457	46.284680	-61.590490	57.0
292091511	46.687770	-61.053870	60.0	292105610	46.782740	-60.987260	117.0	292224558	46.283340	-61.589780	57.0
292091611	46.686720	-61.054800	59.0	292105710	46.784190	-60.985860	116.0	292224657	46.281940	-61.589080	58.0
292091711	46.685670	-61.055750	59.0	292105810	46.785630	-60.984440	116.0	292224757	46.280670	-61.588340	57.0
292091811	46.684640	-61.056690	59.0	292105910	46.787070	-60.983010	117.0	292224857	46.279410	-61.587680	60.0
292091911	46.683620	-61.057650	58.0	292110010	46.788520	-60.981580	117.0	292225003	46.278130	-61.587120	58.0

292231307	46.248960	-61.572770	55.0	293005107	46.115230	-61.505050	26.0	293023216	46.063930	-61.688260	46.0
292231408	46.247610	-61.572100	55.0	293005207	46.113840	-61.504300	23.0	293023316	46.063720	-61.690330	46.0
292231508	46.246330	-61.571410	55.0	293005307	46.112430	-61.503570	24.0	293023415	46.063510	-61.692390	46.0
292231607	46.245030	-61.570670	55.0	293005407	46.111000	-61.502910	27.0	293023516	46.063260	-61.694470	46.0
292231708	46.243690	-61.569940	55.0	293005506	46.109590	-61.502250	27.0	293023616	46.062970	-61.696570	46.0
292231808	46.242360	-61.569250	55.0	293005607	46.108140	-61.501560	27.0	293023716	46.062700	-61.698600	46.0
292231908	46.241010	-61.568530	55.0	293005707	46.106690	-61.501210	26.0	293023816	46.062400	-61.700690	46.0
292232008	46.239650	-61.567840	52.0	293005807	46.105260	-61.501320	24.0	293023915	46.062120	-61.702710	46.0
292232104	46.238380	-61.567200	51.0	293005906	46.104000	-61.502150	18.0	293024016	46.061820	-61.704760	46.0
292232208	46.236930	-61.566440	48.0	293010007	46.103010	-61.503430	18.0	293024115	46.061500	-61.706760	46.0
292232308	46.235580	-61.565700	49.0	293010107	46.102090	-61.504920	18.0	293024216	46.061190	-61.708830	46.0
292232407	46.234240	-61.565020	49.0	293010207	46.101230	-61.506580	20.0	293024316	46.060890	-61.710860	47.0
292232508	46.232850	-61.564360	49.0	293010307	46.100370	-61.508220	20.0	293024415	46.060610	-61.712860	47.0
292232607	46.231470	-61.563650	48.0	293010407	46.099520	-61.509980	19.0	293024516	46.060260	-61.714870	47.0
292232708	46.230090	-61.562890	49.0	293010507	46.098680	-61.511750	22.0	293024616	46.059940	-61.716920	48.0
292232807	46.228740	-61.562150	49.0	293010607	46.097840	-61.513540	28.0	293024716	46.059640	-61.718920	48.0
292232906	46.227350	-61.561430	49.0	293010707	46.096980	-61.515320	28.0	293024816	46.059370	-61.720910	49.0
292233007	46.225940	-61.560790	48.0	293010807	46.096070	-61.517050	28.0	293024916	46.059160	-61.722900	47.0
292233107	46.224560	-61.560060	49.0	293010907	46.095120	-61.518750	29.0	293025016	46.058880	-61.724880	48.0
292233207	46.223160	-61.559310	49.0	293011007	46.094230	-61.520500	29.0	293025116	46.058620	-61.726840	47.0
292233308	46.221770	-61.558560	49.0	293011107	46.093350	-61.522250	28.0	293025216	46.058350	-61.728820	47.0
292233403	46.220480	-61.557880	49.0	293011207	46.092440	-61.523980	27.0	293025316	46.058090	-61.730790	48.0
292233506	46.219010	-61.557130	48.0	293011306	46.091560	-61.525690	28.0	293025415	46.057790	-61.732730	0.0
292233607	46.217600	-61.556540	48.0	293011406	46.090700	-61.527420	26.0	293025516	46.057490	-61.734710	47.0
292233707	46.216150	-61.555900	48.0	293011507	46.089800	-61.529240	28.0	293025616	46.057230	-61.736730	48.0
292233806	46.214760	-61.555300	48.0	293011607	46.088890	-61.530970	28.0	293025716	46.056960	-61.738710	48.0
292233906	46.213370	-61.554640	49.0	293011706	46.087970	-61.532590	29.0	293025816	46.056690	-61.740710	48.0
292234006	46.212000	-61.553920	49.0	293011806	46.087050	-61.534350	28.0	293025916	46.056420	-61.742710	48.0
292234106	46.210620	-61.553240	49.0	293011907	46.086200	-61.536160	26.0	293030015	46.056160	-61.744670	48.0
292234206	46.209240	-61.552560	49.0	293012007	46.085590	-61.538040	29.0	293030116	46.055900	-61.746690	48.0
292234307	46.207830	-61.551870	49.0	293012106	46.085030	-61.539890	29.0	293030216	46.055610	-61.748670	49.0
292234406	46.206480	-61.551200	49.0	293012207	46.084420	-61.541760	27.0	293030316	46.055280	-61.750660	49.0
292234506	46.205120	-61.550510	48.0	293012307	46.084110	-61.543680	28.0	293030416	46.055040	-61.752650	49.0
292234606	46.203750	-61.549810	48.0	293012407	46.083930	-61.545640	29.0	293030516	46.054770	-61.754640	49.0
292234705	46.202400	-61.549150	48.0	293012506	46.083690	-61.547580	31.0	293030616	46.054420	-61.756600	49.0
292234806	46.201000	-61.548480	48.0	293012606	46.083390	-61.549580	32.0	293030714	46.054150	-61.758510	49.0
292234907	46.199630	-61.547840	48.0	293012707	46.083050	-61.551640	33.0	293030815	46.053910	-61.760490	49.0
292235006	46.198290	-61.547200	48.0	293012807	46.082720	-61.553680	36.0	293030916	46.053660	-61.762550	49.0
292235107	46.196880	-61.546520	48.0	293012907	46.082420	-61.555730	35.0	293031016	46.053390	-61.764550	49.0
292235206	46.195560	-61.545830	48.0	293013007	46.082140	-61.557790	35.0	293031116	46.053070	-61.766530	48.0
292235306	46.194210	-61.545140	48.0	293013106	46.081870	-61.559820	36.0	293031215	46.052780	-61.768470	48.0
292235406	46.192870	-61.544440	48.0	293013211	46.081570	-61.562050	34.0	293031316	46.052530	-61.770490	49.0
292235506	46.191530	-61.543740	47.0	293013310	46.081300	-61.564120	33.0	293031416	46.052210	-61.772450	48.0
292235607	46.190190	-61.543050	47.0	293013411	46.081060	-61.566210	33.0	293031516	46.051920	-61.774420	49.0
292235706	46.188840	-61.542370	47.0	293013512	46.080790	-61.568280	34.0	293031615	46.051730	-61.776370	48.0
292235806	46.187520	-61.541700	47.0	293013611	46.080470	-61.570320	36.0	293031716	46.051470	-61.778380	48.0
292235907	46.186140	-61.540950	46.0	293013710	46.080160	-61.572380	37.0	293031815	46.051140	-61.780310	48.0
				293013812	46.079900	-61.574500	40.0	293031916	46.050880	-61.782320	48.0
				293013911	46.079640	-61.576580	41.0	293032021	46.050610	-61.784480	48.0
				293014010	46.079350	-61.578640	41.0	293032118	46.050340	-61.786350	49.0
				293014112	46.079080	-61.580740	41.0	293032221	46.050070	-61.788410	51.0
				293014210	46.078800	-61.582790	41.0	293032321	46.049730	-61.790400	48.0
				293014311	46.078530	-61.584900	42.0	293032420	46.049490	-61.792360	50.0
				293014411	46.078260	-61.586990	42.0	293032520	46.049230	-61.794360	49.0
				293014510	46.077960	-61.589040	42.0	293032618	46.048960	-61.796250	48.0
				293014611	46.077650	-61.591160	42.0	293032721	46.048690	-61.798340	48.0
				293014710	46.077370	-61.593220	43.0	293032821	46.048440	-61.800330	50.0
				293014811	46.077040	-61.595350	43.0	293032921	46.048180	-61.802320	48.0
				293014910	46.076710	-61.597400	43.0	293033020	46.047920	-61.804280	47.0
				293015010	46.076370	-61.599480	44.0	293033118	46.047680	-61.806210	47.0
				293015110	46.076030	-61.601550	44.0	293033221	46.047390	-61.808300	47.0
				293015210	46.075720	-61.603630	44.0	293033321	46.047100	-61.810280	48.0
				293015311	46.075460	-61.605770	44.0	293033421	46.046790	-61.812270	47.0
				293015410	46.075220	-61.607820	44.0	293033521	46.046510	-61.814270	47.0
				293015510	46.074970	-61.609910	44.0	293033618	46.046280	-61.816170	48.0
				293015611	46.074720	-61.612040	44.0	293033721	46.046030	-61.818280	47.0
				293015711	46.074400	-61.614090	44.0	293033821	46.045750	-61.820300	47.0
				293015811	46.074060	-61.616210	44.0	293033920	46.045450	-61.822270	47.0
				293015911	46.073730	-61.618320	44.0	293034021	46.045140	-61.824320	47.0
				293020010	46.073450	-61.620380	44.0	293034118	46.044840	-61.826240	47.0
				293020110	46.073190	-61.622460	44.0	293034221	46.044540	-61.828360	47.0
				293020210	46.072940	-61.624610	44.0	293034321	46.044300	-61.830380	47.0
				293020310	46.072690	-61.626720	44.0	293034421	46.044050	-61.832400	47.0
				293020410	46.072420	-61.628830	44.0	293034520	46.043780	-61.834380	47.0
				293020510	46.072100	-61.630930	44.0	293034626	46.043450	-61.836610	47.0
				293020610	46.071780	-61.632990	44.0	293034725	46.043160	-61.838600	47.0
				293020715	46.071490	-61.635300	45.0	293034826	46.042850	-61.840660	47.0
				293020815	46.071230	-61.637450	44.0	293034926	46.042530	-61.842700	46.0
				293020915	46.070960	-61.639560	44.0	293035026	46.042230	-61.844730	46.0
				293021015	46.070650	-61.641680	44.0	293035124	46.041970	-61.846720	46.0
				293021116	46.070300	-61.643790	44.0	293035225	46.041700	-61.848780	48.0
				293021216	46.069950	-61.645940	44.0	293035324	46.041400	-61.850780	47.0
				293021316	46.069610	-61.648070	45.0	293035425	46.041090	-61.852800	47.0
				293021415	46.069310	-61.650140	45.0	293035524	46.040800	-61.854800	47.0
				293021515	46.069010	-61.652260	45.0	293035624	46.040570	-61.856810	47.0
				293021615	46.068730	-61.654390	45.0	293035725	46.040310	-61.858840	47.0
				293021716	46.068450	-61.656560	45.0	293035825	46.040030	-61.860850	47.0

293041324	46.035800	-61.890620	46.0	293055430	46.085380	-61.739930	49.0	293073545	46.111720	-61.537690	40.0
293041425	46.035160	-61.892360	46.0	293055530	46.085640	-61.737970	49.0	293073645	46.111940	-61.535620	39.0
293041525	46.034160	-61.893530	46.0	293055630	46.085930	-61.736020	49.0	293073745	46.112170	-61.533560	37.0
293041624	46.033050	-61.894730	45.0	293055729	46.086190	-61.734090	49.0	293073844	46.112420	-61.531550	36.0
293041724	46.032470	-61.896550	46.0	293055829	46.086440	-61.732130	49.0	293073945	46.112720	-61.529500	38.0
293041824	46.032720	-61.898270	46.0	293055928	46.086710	-61.730160	49.0	293074045	46.112990	-61.527460	38.0
293041925	46.033470	-61.899310	45.0	293060029	46.086960	-61.728190	49.0	293074145	46.113260	-61.525440	37.0
293042025	46.034380	-61.899560	45.0	293060129	46.087230	-61.726200	49.0	293074245	46.113530	-61.523430	34.0
293042125	46.035260	-61.899360	45.0	293060229	46.087490	-61.724240	49.0	293074345	46.113800	-61.521420	34.0
293042224	46.036190	-61.898640	45.0	293060329	46.087760	-61.722290	49.0	293074445	46.114050	-61.519390	34.0
293042324	46.037210	-61.897410	45.0	293060429	46.088020	-61.720340	49.0	293074544	46.114310	-61.517400	34.0
293042425	46.038510	-61.896220	46.0	293060528	46.088260	-61.718420	49.0	293074645	46.114600	-61.515330	33.0
293042521	46.039710	-61.895520	45.0	293060629	46.088510	-61.716430	49.0	293074745	46.114880	-61.513300	31.0
293042625	46.041000	-61.894900	46.0	293060730	46.088790	-61.714490	49.0	293074845	46.115130	-61.511250	31.0
293042725	46.042150	-61.894320	45.0	293060829	46.089070	-61.712600	49.0	293074945	46.115380	-61.509190	30.0
293042824	46.043320	-61.893640	46.0	293060929	46.089300	-61.710690	49.0	293075045	46.115640	-61.507130	29.0
293042925	46.044630	-61.892950	45.0	293061035	46.089580	-61.708580	49.0	293075145	46.115940	-61.505080	26.0
293043025	46.045970	-61.892330	45.0	293061135	46.089840	-61.706610	49.0	293075245	46.116310	-61.503060	24.0
293043125	46.047320	-61.891880	45.0	293061234	46.090040	-61.704620	49.0	293075345	46.116700	-61.501500	23.0
293043224	46.048560	-61.891320	46.0	293061334	46.090270	-61.702570	49.0	293075445	46.118110	-61.500550	24.0
293043325	46.049830	-61.890680	45.0	293061435	46.090510	-61.700470	49.0	293075545	46.119340	-61.500040	25.0
293043425	46.051150	-61.890050	46.0	293061535	46.090780	-61.698390	49.0	293075645	46.120700	-61.499980	26.0
293043525	46.052520	-61.889470	46.0	293061635	46.091090	-61.696310	49.0	293075745	46.122180	-61.499850	29.0
293043624	46.053840	-61.888900	45.0	293061734	46.091390	-61.694250	49.0	293075845	46.123680	-61.499860	29.0
293043725	46.055170	-61.888340	45.0	293061834	46.091630	-61.692130	49.0	293075944	46.125060	-61.499950	30.0
293043823	46.056390	-61.887800	45.0	293061934	46.091860	-61.690010	48.0	293080045	46.126430	-61.499850	30.0
293043925	46.057710	-61.887240	45.0	293062034	46.092160	-61.687940	48.0	293080145	46.127730	-61.499740	31.0
293044024	46.058990	-61.886730	45.0	293062134	46.092440	-61.685890	48.0	293080241	46.128940	-61.499820	31.0
293044125	46.060260	-61.886210	45.0	293062234	46.092700	-61.683940	48.0	293080345	46.130350	-61.499910	32.0
293044225	46.061540	-61.885660	45.0	293062334	46.092950	-61.682010	48.0	293080445	46.131710	-61.499800	34.0
293044325	46.062820	-61.885090	45.0	293062434	46.093210	-61.680070	48.0	293080544	46.133100	-61.499870	35.0
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293044525	46.065100	-61.883720	45.0	293062634	46.093700	-61.676000	48.0	293080745	46.135900	-61.499880	37.0
293044624	46.065920	-61.882480	45.0	293062734	46.093930	-61.674000	47.0	293080845	46.137260	-61.500170	37.0
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293044825	46.066880	-61.878850	45.0	293062935	46.094520	-61.670010	47.0	293081044	46.138420	-61.502840	39.0
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293045025	46.067710	-61.875030	45.0	293063135	46.095050	-61.665980	47.0	293081244	46.137890	-61.506470	40.0
293045125	46.067950	-61.873070	45.0	293063235	46.095350	-61.663950	47.0	293081343	46.137590	-61.508420	41.0
293045225	46.068270	-61.871140	45.0	293063335	46.095640	-61.661920	47.0	293081443	46.137250	-61.510260	41.0
293045325	46.068530	-61.869140	45.0	293063435	46.095890	-61.659850	47.0	293081544	46.136980	-61.512100	41.0
293045425	46.068830	-61.867110	45.0	293063535	46.096150	-61.657780	47.0	293081643	46.136720	-61.513840	41.0
293045525	46.069140	-61.865090	46.0	293063635	46.096420	-61.655710	47.0	293081744	46.136370	-61.515570	41.0
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293045825	46.070030	-61.858770	46.0	293063935	46.097150	-61.649490	46.0	293082044	46.135500	-61.520920	41.0
293045924	46.070240	-61.856690	46.0	293064035	46.097420	-61.647460	46.0	293082143	46.135470	-61.522830	41.0
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293050124	46.070800	-61.852350	46.0	293064234	46.098020	-61.643590	46.0	293082343	46.135030	-61.526780	42.0
293050225	46.071090	-61.850140	46.0	293064334	46.098260	-61.641680	46.0	293082444	46.134760	-61.528810	42.0
293050324	46.071400	-61.847980	46.0	293064434	46.098480	-61.639580	46.0	293082543	46.134510	-61.530770	42.0
293050425	46.071680	-61.845730	46.0	293064540	46.098720	-61.637670	45.0	293082644	46.134300	-61.532730	42.0
293050525	46.071900	-61.843540	47.0	293064640	46.098980	-61.635720	45.0	293082743	46.134080	-61.534580	42.0
293050625	46.072170	-61.841330	0.0	293064740	46.099220	-61.633720	46.0	293082843	46.133780	-61.536360	41.0
293050725	46.072440	-61.839130	47.0	293064840	46.099500	-61.631700	46.0	293082943	46.133530	-61.538110	41.0
293050825	46.072700	-61.836940	47.0	293064940	46.099810	-61.629670	46.0	293083044	46.133300	-61.539860	42.0
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293051025	46.073260	-61.832590	47.0	293065140	46.100350	-61.625670	46.0	293083244	46.132800	-61.543450	42.0
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293051325	46.074180	-61.826090	47.0	293065439	46.101070	-61.619740	45.0	293083544	46.132110	-61.549100	43.0
293051425	46.074440	-61.823900	48.0	293065540	46.101370	-61.617760	45.0	293083644	46.131850	-61.550960	43.0
293051525	46.074680	-61.821720	48.0	293065640	46.101650	-61.615840	45.0	293083744	46.131610	-61.552800	43.0
293051625	46.074970	-61.819560	0.0	293065739	46.101890	-61.613940	45.0	293083844	46.131400	-61.554640	43.0
293051724	46.075270	-61.817420	48.0	293065840	46.102120	-61.611950	45.0	293083944	46.131210	-61.556490	43.0
293051825	46.075630	-61.815220	48.0	293065940	46.102360	-61.609990	45.0	293084044	46.131030	-61.558330	44.0
293051925	46.075970	-61.813020	48.0	293070040	46.102630	-61.608040	45.0	293084143	46.130810	-61.560140	44.0
293052025	46.076310	-61.810800	48.0	293070139	46.102890	-61.606120	45.0	293084244	46.130500	-61.561980	44.0
293052124	46.076610	-61.808600	48.0	293070239	46.103120	-61.604150	45.0	293084343	46.130210	-61.563760	44.0
293052225	46.076870	-61.806310	49.0	293070339	46.103340	-61.602180	44.0	293084444	46.129980	-61.565580	44.0
293052325	46.077130	-61.804040	49.0	293070440	46.103590	-61.600190	44.0	293084544	46.129820	-61.567470	44.0
293052425	46.077390	-61.801770	49.0	293070540	46.103880	-61.598240	44.0	293084643	46.129640	-61.569280	44.0
293052525	46.077680	-61.799500	49.0	293070639	46.104160	-61.596300	44.0	293084743	46.129390	-61.571090	44.0
293052625	46.077940	-61.797230	49.0	293070740	46.104450	-61.594280	44.0	293084844	46.129150	-61.572960	44.0
293052725	46.078210	-61.794960	49.0	293070840	46.104720	-61.592330	44.0	293084944	46.128940	-61.574780	44.0
293052825	46.078510	-61.792700	49.0	293070940	46.104970	-61.590350	44.0	293085043	46.128720	-61.576620	44.0
293052925	46.078820	-61.790440	50.0	293071040	46.105210	-61.588350	44.0	293085144	46.128480	-61.578490	43.0
293053025	46.079090	-61.788160	47.0	293071140	46.105470	-61.586320	44.0	293085244	46.128250	-61.580330	43.0
293053129	46.0										

293091644	46.122650	-61.624480	47.0	293105747	46.147150	-61.577450	46.0	293225308	46.152290	-62.398330	17.0
293091744	46.122410	-61.626350	47.0	293105848	46.147420	-61.575210	45.0	293225408	46.153020	-62.399790	17.0
293091844	46.122170	-61.628170	47.0	293105947	46.147680	-61.573030	45.0	293225508	46.153760	-62.401210	17.0
293091944	46.121940	-61.630060	47.0	293110048	46.147940	-61.570780	44.0	293225613	46.154600	-62.402700	0.0
293092044	46.121700	-61.631920	47.0	293110147	46.148170	-61.568610	44.0	293225713	46.155150	-62.404310	16.0
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293092244	46.121190	-61.635640	47.0	293110348	46.148700	-61.564190	44.0	293225913	46.155740	-62.407990	16.0
293092344	46.120950	-61.637510	47.0	293110448	46.149010	-61.562000	44.0	293230013	46.155890	-62.409970	16.0
293092444	46.120700	-61.639370	47.0	293110547	46.149280	-61.559830	44.0	293230113	46.156090	-62.411960	17.0
293092544	46.120460	-61.641240	47.0	293110648	46.149530	-61.557600	44.0	293230213	46.156600	-62.413780	16.0
293092644	46.120210	-61.643110	48.0	293110748	46.149750	-61.555390	44.0	293230313	46.157610	-62.414730	16.0
293092744	46.120000	-61.645000	48.0	293110848	46.149980	-61.553200	44.0	293230409	46.158620	-62.414650	15.0
293092844	46.119800	-61.646890	48.0	293110948	46.150240	-61.551050	44.0	293230513	46.159460	-62.413520	13.0
293092943	46.119600	-61.648750	48.0	293111047	46.150460	-61.549040	44.0	293230613	46.160080	-62.411730	12.0
293093044	46.119410	-61.650660	48.0	293111147	46.150610	-61.547100	44.0	293230712	46.160270	-62.409700	11.0
293093144	46.119200	-61.652550	48.0	293111248	46.150810	-61.545220	44.0	293230812	46.159740	-62.407750	10.7
293093244	46.118950	-61.654410	48.0	293111348	46.150970	-61.543400	44.0	293230913	46.158820	-62.406100	11.3
293093344	46.118700	-61.656280	48.0	293111448	46.151100	-61.541610	44.0	293231012	46.157750	-62.404540	11.8
293093444	46.118440	-61.658140	48.0	293111547	46.151220	-61.539890	44.0	293231112	46.156570	-62.403250	13.2
293093544	46.118200	-61.660010	50.0	293111648	46.151360	-61.538130	44.0	293231211	46.155260	-62.402100	14.9
293093643	46.117980	-61.661860	48.0	293111748	46.151470	-61.536420	44.0	293231312	46.153930	-62.400790	15.9
293093744	46.117760	-61.663770	49.0	293111848	46.151600	-61.534740	44.0	293231412	46.152610	-62.399440	16.7
293093844	46.117560	-61.665640	49.0	293111947	46.151750	-61.533060	43.0	293231512	46.151440	-62.398160	16.8
293093944	46.117350	-61.667510	49.0	293112048	46.151920	-61.531370	43.0	293231612	46.150290	-62.397040	17.4
293094044	46.117130	-61.669380	49.0	293112148	46.152050	-61.529700	43.0	293231712	46.149160	-62.396080	0.0
293094144	46.116880	-61.671250	49.0	293112248	46.152200	-61.528020	43.0	293231812	46.148090	-62.395080	0.0
293094244	46.116640	-61.673100	49.0	293112348	46.152340	-61.526370	43.0	293231912	46.147120	-62.394020	18.1
293094344	46.116420	-61.674970	49.0	293112447	46.152600	-61.524820	42.0	293232012	46.146130	-62.392930	0.0
293094444	46.116180	-61.676840	49.0	293112548	46.152760	-61.523400	42.0	293232112	46.145150	-62.391860	17.6
293094544	46.115920	-61.678700	52.0	293112648	46.152870	-61.522140	42.0	293232212	46.144160	-62.390820	17.6
293094644	46.115640	-61.680560	49.0	293112748	46.152920	-61.521030	42.0	293232312	46.143130	-62.389830	0.0
293094744	46.115360	-61.682420	49.0	293112848	46.153030	-61.520020	42.0	293232412	46.142120	-62.388820	17.2
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293094944	46.114820	-61.685980	49.0	293113133	46.153430	-61.517680	42.0	293232612	46.140080	-62.386910	17.7
293095044	46.114600	-61.687270	49.0	293113233	46.153560	-61.516960	42.0	293232712	46.139110	-62.385930	0.0
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293095344	46.120100	-61.688070	49.0	293113543	46.154560	-61.514190	42.0	293233017	46.135970	-62.382910	14.3
293095444	46.121500	-61.689140	49.0	293113643	46.154840	-61.513160	42.0	293233117	46.134930	-62.381420	13.6
293095544	46.123060	-61.690060	50.0	293113742	46.155020	-61.511960	42.0	293233217	46.133840	-62.380340	11.7
293095644	46.124680	-61.691020	50.0	293113843	46.155140	-61.510700	42.0	293233317	46.132710	-62.379200	10.6
293095744	46.126220	-61.691990	50.0	293113943	46.155240	-61.509380	42.0	293233417	46.131550	-62.378120	10.7
293095844	46.127610	-61.692950	50.0	293114043	46.155360	-61.508050	43.0	293233517	46.130420	-62.377040	0.0
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293100044	46.129990	-61.693650	50.0	293114243	46.155710	-61.505330	43.0	293233717	46.128200	-62.374830	0.0
293100144	46.131030	-61.693260	51.0	293114343	46.155930	-61.504000	43.0	293233817	46.127090	-62.373760	0.0
293100244	46.132100	-61.692680	53.0	293114443	46.156120	-61.502670	43.0	293233917	46.125980	-62.372640	14.8
293100344	46.133090	-61.691790	50.0	293114543	46.156380	-61.501360	43.0	293234017	46.124890	-62.371470	15.0
293100444	46.133750	-61.690500	50.0	293114643	46.156720	-61.500100	43.0	293234117	46.123790	-62.370300	14.7
293100544	46.134070	-61.688890	50.0	293114743	46.157060	-61.498820	43.0	293234216	46.122680	-62.369180	15.6
293100644	46.134430	-61.687050	50.0	293114843	46.157380	-61.497510	43.0	293234317	46.121480	-62.367950	16.1
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293101843	46.137230	-61.662560	50.0	293221403	46.121570	-62.340700	18.0	293235517	46.106600	-62.353240	0.0
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293102044	46.137730	-61.658610	50.0	293221603	46.122870	-62.343050	19.0	293235716	46.104130	-62.350820	20.6
293102143	46.137990	-61.656580	50.0	293221703	46.123680	-62.344230	18.0	293235817	46.102950	-62.349530	18.7
293102243	46.138240	-61.654520	50.0	293221803	46.124430	-62.345450	18.0	293235917	46.101760	-62.348250	0.0
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293103143	46.140560	-61.634820	49.0	293222708	46.132040	-62.360130	16.0	294000402	46.095800	-62.342700	21.5
293103243	46.140780	-61.632600	49.0	293222808	46.132930	-62.361880	51.0	294000502	46.094550	-62.341490	0.0
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294003107	46.055760	-62.328000	27.0	294021206	45.911100	-62.292450	32.0	294035310	45.879090	-62.493340	22.1
294003203	46.054360	-62.327690	27.0	294021306	45.909900	-62.293400	31.0	294035410	45.878830	-62.495410	20.9
294003307	46.052760	-62.327290	27.0	294021406	45.909200	-62.295090	31.0	294035510	45.878500	-62.497470	21.0
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294004007	46.042210	-62.324880	29.0	294022106	45.907020	-62.310840	30.0	294040209	45.876180	-62.512000	19.6
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294004207	46.039280	-62.324020	29.0	294022306	45.906310	-62.314980	30.0	294040410	45.875500	-62.516200	21.1
294004307	46.037850	-62.323600	30.0	294022406	45.905960	-62.316950	30.0	294040509	45.875220	-62.518330	22.4
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294004707	46.032200	-62.322290	33.0	294022806	45.904790	-62.324300	30.0	294040910	45.873920	-62.526890	19.8
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294011107	45.998030	-62.313710	25.0	294025206	45.898130	-62.368570	31.0	294043320	45.866180	-62.577910	16.8
294011207	45.996620	-62.313350	25.0	294025306	45.897750	-62.370660	31.0	294043420	45.865830	-62.580000	16.5
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294011707	45.989650	-62.311490	23.0	294025811	45.896150	-62.381140	0.0	294043920	45.864100	-62.590420	14.8
294011807	45.988270	-62.311080	23.0	294025911	45.895920	-62.383260	29.0	294044016	45.863830	-62.592350	15.3
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294012006	45.985450	-62.310510	24.0	294030111	45.895320	-62.387440	30.0	294044220	45.863190	-62.596580	16.9
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294012706	45.975550	-62.307830	29.0	294030811	45.893050	-62.401740	25.0	294044925	45.861250	-62.610420	17.4
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294013306	45.966720	-62.305950	32.0	294031411	45.891180	-62.414110	23.4	294045525	45.859590	-62.621720	16.1
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294013706	45.960840	-62.304650	35.0	294031811	45.889950	-62.421990	23.6	294045925	45.858610	-62.629250	16.9
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294013906	45.957910	-62.303990	37.0	294032011	45.889340	-62.426050	23.7	294050125	45.858170	-62.632980	17.4
294014006	45.956450	-62.303710	37.0	294032111	45.889070	-62.428090	23.7	294050225	45.857950	-62.634760	19.4
294014106	45.955050	-62.303350	39.0	294032210	45.888760	-62.430090	25.0	294050325	45.857750	-62.636680	21.1
294014206	45.953630	-62.302820	39.0	294032310	45.888430	-62.432120	24.9	294050425	45.857510	-62.638620	22.9
294014306	45.952220	-62.302380	39.0	294032410	45.888080	-62.434180	24.0	294050525	45.857310	-62.640620	21.4
294014406	45.950800	-62.301960	39.0	294032510	45.887770	-62.436210	23.9	294050624	45.857130	-62.642580	18.6
294014506	45.949410	-62.301570	38.0	294032611	45.887490	-62.438180	23.9	294050725	45.856940	-62.644570	18.5
294014605	45.947980	-62.301160	38.0	294032711	45.887260	-62.440060	23.1	294050825	45.856780	-62.646530	18.3
294014706	45.946530	-62.300740	38.0	294032811	45.886990	-62.441990	23.0	294050925	45.856680	-62.648510	18.9
294014806	45.945090	-62.300390	38.0	294032911	45.886650	-62.443880	23.1	294051025	45.856520	-62.650470	18.9
294014906	45.943630										

294053429	45.897830	-62.689220	24.5	294071534	45.854920	-62.813120	33.6	294200028	45.894210	-62.658240	21.4
294053530	45.898940	-62.690510	31.7	294071634	45.855870	-62.813990	31.9	294200128	45.895330	-62.656690	20.8
294053630	45.900100	-62.691780	32.0	294071734	45.856870	-62.814760	31.3	294200228	45.896440	-62.655110	21.1
294053729	45.901250	-62.693190	33.8	294071834	45.857860	-62.815590	31.3	294200328	45.897550	-62.653620	22.2
294053830	45.902390	-62.694610	37.4	294071934	45.858840	-62.816480	31.1	294200428	45.898640	-62.652290	24.7
294053929	45.903520	-62.695990	38.3	294072034	45.859810	-62.817400	29.4	294200528	45.899700	-62.651080	26.8
294054029	45.904640	-62.697330	41.0	294072134	45.860790	-62.818320	28.4	294200628	45.900760	-62.649910	27.3
294054129	45.905750	-62.698660	48.6	294072234	45.861770	-62.819270	29.1	294200728	45.901830	-62.648760	27.3
294054229	45.906890	-62.699920	55.2	294072334	45.862750	-62.820240	28.6	294200828	45.902850	-62.647560	27.6
294054329	45.907970	-62.701230	2.6	294072434	45.863730	-62.821200	29.2	294200928	45.903870	-62.646380	28.3
294054429	45.909030	-62.702580	2.2	294072534	45.864710	-62.822140	29.9	294201028	45.904910	-62.645240	29.6
294054527	45.910040	-62.703820	2.6	294072634	45.865710	-62.823060	32.0	294201128	45.905910	-62.644050	29.7
294054629	45.911210	-62.705090	2.6	294072734	45.866680	-62.824000	30.9	294201228	45.906920	-62.642740	30.7
294054729	45.912290	-62.706340	47.3	294072834	45.867600	-62.824990	30.4	294201328	45.908010	-62.641410	30.9
294054829	45.913390	-62.707630	43.1	294072934	45.868530	-62.825990	30.9	294201428	45.909160	-62.640110	32.9
294054929	45.914540	-62.708950	41.5	294073034	45.869500	-62.826930	33.2	294201528	45.910270	-62.638740	34.2
294055029	45.915690	-62.710280	41.3	294073134	45.870490	-62.827870	29.8	294201628	45.911340	-62.637250	36.2
294055129	45.916850	-62.711640	40.6	294073234	45.871510	-62.828760	28.9	294201728	45.912400	-62.635750	35.2
294055229	45.918020	-62.713030	40.7	294073334	45.872540	-62.829650	26.9	294201828	45.913460	-62.634270	43.1
294055329	45.919140	-62.714480	41.0	294073434	45.873550	-62.830560	26.6	294201928	45.914500	-62.632790	48.0
294055429	45.920300	-62.715870	38.2	294073534	45.874560	-62.831480	26.1	294202028	45.915540	-62.631320	51.9
294055529	45.921530	-62.717140	35.2	294073634	45.875580	-62.832470	26.0	294202128	45.916620	-62.629920	54.1
294055629	45.922760	-62.718290	31.5	294073734	45.876500	-62.833400	25.4	294202228	45.917800	-62.628720	52.4
294055729	45.924070	-62.718730	31.0	294073834	45.877680	-62.834610	25.0	294202328	45.918960	-62.627530	49.4
294055825	45.925210	-62.719300	30.4	294073934	45.878860	-62.835530	24.9	294202428	45.920100	-62.626300	50.1
294055929	45.926100	-62.720700	28.2	294074034	45.879940	-62.836570	25.1	294202528	45.921170	-62.624970	51.5
294060029	45.926230	-62.722400	27.9	294074134	45.881050	-62.837550	25.7	294202628	45.922250	-62.623640	50.2
294060129	45.925490	-62.724060	29.9	294074233	45.882070	-62.838570	23.7	294202728	45.923340	-62.622370	50.5
294060229	45.924110	-62.725000	30.6	294074334	45.883070	-62.839650	22.7	294202828	45.924420	-62.621090	46.2
294060329	45.922760	-62.725830	31.3	294074434	45.884170	-62.840830	20.1	294202928	45.925480	-62.619820	47.6
294060429	45.921460	-62.726730	34.3	294074533	45.885370	-62.842110	22.6	294203028	45.926570	-62.618540	48.4
294060529	45.920100	-62.727640	35.4	294074633	45.886620	-62.843280	19.6	294203128	45.927720	-62.617260	47.2
294060629	45.918880	-62.728650	37.6	294074734	45.887730	-62.844500	23.9	294203228	45.928840	-62.615880	44.8
294060729	45.917720	-62.729860	37.8	294074833	45.888770	-62.845660	21.7	294203328	45.929980	-62.614560	42.2
294060829	45.916480	-62.730960	35.9	294074934	45.890040	-62.846880	27.3	294203428	45.931060	-62.613090	39.2
294060929	45.915260	-62.732200	38.6	294075034	45.891240	-62.847950	30.2	294203528	45.932140	-62.611760	39.8
294061029	45.913990	-62.733440	34.2	294075133	45.892520	-62.849140	24.8	294203628	45.933170	-62.610440	37.5
294061126	45.912750	-62.734570	31.7	294075233	45.893730	-62.850410	19.0	294203728	45.934170	-62.609130	35.7
294061229	45.911390	-62.735920	31.8	294075333	45.894950	-62.851560	19.2	294203828	45.935170	-62.607850	34.3
294061329	45.910130	-62.737240	31.5	294075433	45.896120	-62.852710	17.9	294203928	45.936180	-62.606550	33.8
294061429	45.908950	-62.738520	31.5	294075533	45.897300	-62.853930	17.3	294204027	45.937210	-62.605280	34.0
294061529	45.907820	-62.739730	31.8	294075633	45.898530	-62.855120	17.1	294204128	45.938230	-62.603990	33.9
294061629	45.906710	-62.740990	32.6	294075733	45.899730	-62.856420	16.2	294204228	45.939290	-62.602670	33.6
294061729	45.905560	-62.742090	34.5	294075833	45.901030	-62.857580	14.4	294204328	45.940410	-62.601290	33.8
294061829	45.904400	-62.743320	35.2	294075933	45.902190	-62.858870	13.9	294204427	45.941530	-62.599870	33.6
294061929	45.903220	-62.744630	34.1	294080033	45.903380	-62.860030	14.3	294204527	45.942610	-62.598430	33.2
294062028	45.902070	-62.745940	33.9	294080133	45.904610	-62.861160	14.1	294204624	45.943200	-62.596790	33.2
294062129	45.900790	-62.747280	32.3	294080233	45.905760	-62.862340	14.3	294204727	45.943840	-62.594910	33.2
294062229	45.899510	-62.748560	31.5	294080333	45.906970	-62.863510	14.7	294204827	45.944900	-62.593930	33.0
294062329	45.898240	-62.749890	32.1	294080433	45.908180	-62.864770	14.5	294204927	45.946020	-62.594010	29.0
294062429	45.897110	-62.751190	31.3	294080533	45.909520	-62.865770	14.2	294205027	45.946790	-62.594910	27.1
294062529	45.896040	-62.752460	31.5	294080633	45.910630	-62.867000	14.2	294205127	45.947600	-62.596110	26.5
294062629	45.894970	-62.753680	35.5	294080733	45.911900	-62.867970	14.7	294205227	45.947220	-62.597350	25.5
294062729	45.893890	-62.754860	37.8	294080833	45.913140	-62.869260	15.0	294205327	45.947540	-62.598730	25.1
294062829	45.892790	-62.756060	36.1	294080933	45.914440	-62.870340	15.0	294205427	45.947880	-62.600330	24.1
294062934	45.891480	-62.757310	37.4	294081033	45.915700	-62.871490	15.2	294205527	45.947570	-62.601970	23.8
294063034	45.890260	-62.758540	38.3	294081133	45.916950	-62.872640	14.6	294205627	45.946590	-62.603090	24.2
294063134	45.889050	-62.759880	40.4	294081233	45.918250	-62.873750	14.0	294205727	45.945290	-62.603910	26.0
294063234	45.887860	-62.761150	47.4	294081333	45.919470	-62.875000	13.4	294205827	45.943880	-62.603650	27.8
294063334	45.886650	-62.762290	52.7	294081433	45.920660	-62.876290	14.2	294205926	45.942780	-62.602500	33.0
294063434	45.885490	-62.763420	54.2	294081533	45.921960	-62.877340	14.9	294210027	45.941880	-62.600790	33.2
294063534	45.884400	-62.764630	49.6	294081633	45.923220	-62.878490	14.1	294210127	45.941320	-62.598740	33.4
294063634	45.883270	-62.765850	44.4	294081733	45.924400	-62.879760	13.9	294210227	45.940670	-62.596580	33.3
294063730	45.882150	-62.766970	41.0	294081833	45.925670	-62.880870	15.7	294210327	45.939990	-62.594320	33.8
294063834	45.880820	-62.768410	41.4	294081933	45.926910	-62.882100	16.4	294210427	45.939410	-62.593910	33.8
294063934	45.879580	-62.769810	39.1	294082033	45.928100	-62.883380	16.8	294210527	45.938800	-62.592520	36.9
294064034	45.878320	-62.771120	37.0	294082133	45.929350	-62.884600	17.3	294210627	45.938080	-62.591750	38.3
294064134	45.877080	-62.772350	37.7	294082238	45.930710	-62.885940	17.0	294210727	45.937320	-62.584770	39.1
294064234	45.875890	-62.773590	36.0	294082338	45.931930	-62.887230	15.3	294210827	45.936600	-62.582350	39.8
294064334	45.874740	-62.774870	34.5	294082438	45.933160	-62.888520	13.3	294210927	45.936020	-62.579870	43.1
294064434	45.873600	-62.776120	35.3	294082538	45.934450	-62.889630	13.3	294211027	45.935440	-62.577400	45.0
294064534	45.872490	-62.777390	35.1	294082638	45.935670	-62.890850	13.5	294211127	45.934820	-62.574920	45.8
294064634	45.871390	-62.778580	34.1	294082738	45.936870	-62.892060	15.0	294211227	45.934110	-62.572510	44.8
294064734	45.870160	-62.779600	32.6	294082838	45.938140	-62.893200	16.6	294211327	45.933350	-62.570140	44.9
294064834	45.868980	-62.780610	32.1	294082938	45.939410	-62.894430	16.2	294211427	45.932590	-62.567750	43.0
294064934	45.867840	-62.781770	31.6	294083038	45.940690	-62.895700	20.4	294211527	45.931890	-62.565310	42.5
294065032	45.866840	-62.783020	31.4	294083138	45.942000	-62.896930	25.6	294211627	45.931240	-62.562840	43.3
294065134	45.865700	-62.784280	31.5	294083238	45.943340	-62.898140	27.3	294211727	45.930570	-62.560360	44.9
294065234	45.864										



294214127	45.916360	-62.509850	25.2	294232226	45.958760	-62.349690	31.3	295010000	45.958870	-62.203970	37.0
294214227	45.915710	-62.507630	22.6	294232326	45.958100	-62.347550	31.9	295010101	45.960190	-62.203300	37.0
294214327	45.915080	-62.505400	20.4	294232426	45.957370	-62.345420	32.1	295010201	45.961490	-62.202600	38.0
294214427	45.914440	-62.503220	20.5	294232526	45.956600	-62.343310	32.3	295010301	45.962800	-62.201910	38.0
294214527	45.913780	-62.501020	20.6	294232626	45.955860	-62.341180	33.2	295010400	45.964100	-62.201250	38.0
294214627	45.913080	-62.498780	20.8	294232726	45.955160	-62.339080	33.6	295010500	45.965410	-62.200630	38.0
294214727	45.912430	-62.496620	20.9	294232826	45.954480	-62.337040	33.8	295010600	45.966730	-62.200050	39.0
294214827	45.911910	-62.494320	20.8	294232926	45.953820	-62.335050	34.1	295010700	45.968040	-62.199430	40.0
294214927	45.911480	-62.492070	20.6	294233026	45.953160	-62.333090	34.4	295010800	45.969360	-62.198800	40.0
294215027	45.910970	-62.489890	20.4	294233126	45.952480	-62.331170	34.9	295010900	45.970680	-62.198160	40.0
294215127	45.910390	-62.487820	20.5	294233226	45.951830	-62.329240	35.3	295011000	45.971990	-62.197510	41.0
294215227	45.909790	-62.485750	20.2	294233326	45.951210	-62.327320	35.8	295011100	45.973290	-62.196800	41.0
294215327	45.909150	-62.483690	19.8	294233426	45.950580	-62.325390	36.4	295011200	45.974610	-62.196080	41.0
294215427	45.908470	-62.481730	20.2	294233526	45.949970	-62.323460	36.5	295011300	45.975920	-62.195370	40.0
294215527	45.907840	-62.479690	20.6	294233626	45.949340	-62.321530	36.5	295011400	45.977240	-62.194700	40.0
294215627	45.907270	-62.477570	21.5	294233726	45.948640	-62.319660	36.3	295011500	45.978560	-62.194030	40.0
294215727	45.906680	-62.475540	23.1	294233826	45.947930	-62.317800	36.5	295011600	45.979880	-62.193340	0.0
294215827	45.906090	-62.473420	24.7	294233926	45.947280	-62.315910	36.6	295011700	45.981200	-62.192650	40.0
294215927	45.905500	-62.471320	26.1	294234026	45.946660	-62.314010	36.0	295011800	45.982530	-62.191950	40.0
294220027	45.905080	-62.469210	27.1	294234126	45.946030	-62.312120	35.9	295011900	45.983850	-62.191280	40.0
294220127	45.904440	-62.467190	29.0	294234226	45.945400	-62.310240	35.9	295012000	45.985190	-62.190620	40.0
294220227	45.903750	-62.465210	29.9	294234326	45.944790	-62.308350	35.9	295012100	45.986530	-62.189970	39.0
294220327	45.903180	-62.463130	30.1	294234426	45.944190	-62.306480	36.2	295012200	45.987860	-62.189350	39.0
294220427	45.902700	-62.461030	30.5	294234526	45.943550	-62.304650	37.4	295012300	45.989210	-62.188740	38.0
294220527	45.902210	-62.458930	31.0	294234626	45.942880	-62.302760	37.8	295012400	45.990550	-62.188110	38.0
294220627	45.901630	-62.456880	30.9	294234726	45.942250	-62.300900	37.4	295012500	45.991890	-62.187470	37.0
294220727	45.901000	-62.454830	30.2	294234826	45.941640	-62.299030	36.7	295012600	45.993230	-62.186840	0.0
294220827	45.900420	-62.452730	29.8	294234926	45.941050	-62.297150	35.9	295012700	45.994570	-62.186180	36.0
294220927	45.899840	-62.450620	30.5	294235026	45.940440	-62.295270	35.0	295012800	45.995910	-62.185530	36.0
294221027	45.899220	-62.448540	31.7	294235126	45.939780	-62.293390	35.0	295012900	45.997250	-62.184870	36.0
294221127	45.898580	-62.446480	32.8	294235226	45.939120	-62.291510	34.9	295013000	45.998580	-62.184190	36.0
294221227	45.897970	-62.444370	31.9	294235326	45.938470	-62.289620	35.0	295013100	45.999930	-62.183490	36.0
294221327	45.897410	-62.442240	0.0	294235426	45.937820	-62.287740	35.3	295013200	46.001260	-62.182770	35.0
294221427	45.896890	-62.440090	29.0	294235526	45.937180	-62.285870	35.1	295013300	46.002600	-62.182070	35.0
294221527	45.896380	-62.437930	31.8	294235626	45.936550	-62.283990	34.8	295013400	46.003940	-62.181370	35.0
294221627	45.895820	-62.435810	30.9	294235726	45.935900	-62.282120	35.2	295013500	46.005290	-62.180670	35.0
294221727	45.895230	-62.433750	28.1	294235826	45.935280	-62.280250	35.3	295013600	46.006630	-62.179950	35.0
294221827	45.894610	-62.431630	26.3	294235926	45.934700	-62.278390	35.2	295013700	46.007980	-62.179290	35.0
294221927	45.893970	-62.429570	25.4					295013800	46.009350	-62.178660	35.0
294222027	45.893320	-62.427520	25.0					295013900	46.010700	-62.178020	35.0
294222127	45.892690	-62.425460	24.9					295014000	46.012070	-62.177380	35.0
294222227	45.892080	-62.423400	24.7					295014100	46.013430	-62.176750	35.0
294222327	45.891440	-62.421380	24.1					295014157	46.014720	-62.176150	35.0
294222427	45.890900	-62.419280	24.7	295000101	45.933800	-62.275470	35.0	295014300	46.016150	-62.175460	34.0
294222527	45.890370	-62.417190	22.9	295000201	45.933200	-62.273620	35.0	295014400	46.017510	-62.174800	34.0
294222627	45.889830	-62.415090	21.8	295000301	45.932580	-62.271740	34.7	295014500	46.018880	-62.174110	34.0
294222727	45.889370	-62.412960	20.6	295000401	45.931960	-62.269950	34.7	295014600	46.020240	-62.173440	34.0
294222827	45.889430	-62.410910	21.3	295000501	45.931320	-62.268130	34.5	295014700	46.021610	-62.172720	33.0
294222927	45.890000	-62.409340	21.9	295000601	45.930650	-62.266290	34.3	295014800	46.022960	-62.171970	31.0
294223027	45.890820	-62.408170	22.0	295000701	45.930000	-62.264440	34.6	295014900	46.024310	-62.171210	29.0
294223127	45.891890	-62.407040	22.4	295000801	45.929380	-62.262660	34.6	295015000	46.025660	-62.170500	30.0
294223227	45.893170	-62.405830	23.0	295000901	45.928720	-62.260880	35.0	295015100	46.027000	-62.169800	28.0
294223327	45.894650	-62.404780	23.7	295001001	45.928050	-62.259890	35.2	295015200	46.028350	-62.169120	25.0
294223427	45.896250	-62.404020	25.9	295001101	45.927380	-62.257220	34.9	295015300	46.029720	-62.168470	24.0
294223527	45.897890	-62.403110	31.4	295001201	45.926750	-62.255400	35.0	295015400	46.031090	-62.167850	24.0
294223627	45.899470	-62.402030	32.0	295001301	45.926160	-62.253550	34.6	295015456	46.032380	-62.167230	23.0
294223727	45.900960	-62.400960	32.1	295001401	45.925560	-62.251730	34.6	295015600	46.033830	-62.166500	22.0
294223827	45.902370	-62.400000	32.5	295001501	45.924980	-62.249910	34.6	295015700	46.035190	-62.165800	23.0
294223924	45.903690	-62.399100	31.6	295001601	45.924360	-62.248100	34.3	295015800	46.036560	-62.165160	24.0
294224027	45.905180	-62.398080	30.3	295001701	45.923760	-62.246280	34.3	295015900	46.037830	-62.164520	25.0
294224127	45.906620	-62.397120	29.9	295001801	45.923160	-62.244460	34.0	295020000	46.038750	-62.163870	25.0
294224227	45.908060	-62.396120	30.0	295001901	45.922560	-62.242640	33.6	295020100	46.039180	-62.163250	25.0
294224327	45.909510	-62.395090	31.1	295002001	45.921960	-62.240820	33.7	295020200	46.039630	-62.162650	25.0
294224427	45.910970	-62.394070	32.2	295002101	45.921360	-62.239010	33.4	295020300	46.038120	-62.170540	25.0
294224527	45.912430	-62.393040	34.6	295002201	45.920760	-62.237190	33.3	295020400	46.036720	-62.170760	25.0
294224627	45.913900	-62.392010	37.4	295002301	45.920160	-62.235380	33.1	295020500	46.035370	-62.169820	23.0
294224727	45.915370	-62.391060	38.7	295002401	45.919540	-62.233580	33.2	295020600	46.034260	-62.168300	23.0
294224826	45.916810	-62.390040	38.4	295002501	45.918910	-62.231770	33.2	295020700	46.033110	-62.166710	22.0
294224927	45.918240	-62.389030	37.9	295002601	45.918280	-62.229960	33.1	295020759	46.032070	-62.165170	23.0
294225027	45.919680	-62.388780	36.4	295002701	45.917740	-62.228100	33.0	295020900	46.031020	-62.163610	25.0
294225127	45.921130	-62.386800	35.6	295002801	45.917160	-62.226350	33.0	295021000	46.029980	-62.162280	28.0
294225223	45.922540	-62.385890	35.2	295002901	45.916510	-62.224820	33.0	295021100	46.028940	-62.161050	31.0
294225326	45.924090	-62.384860	34.8	295003001	45.915890	-62.223430	34.0	295021200	46.027910	-62.159830	32.0
294225426	45.925530	-62.383790	34.6	295003101	45.915280	-62.222340	34.0	295021300	46.026930	-62.158590	34.0
294225526	45.926990	-62.382720	34.3	295003201	45.914690	-62.221310	34.0	295021400	46.026000	-62.157320	35.0
294225626	45.928480	-62.381710	34.2	295003301	45.914140	-62.220280	34.0	295021500	46.025070	-62.156050	35.0
294225726	45.929970	-62.380750	34.1	295003401	45.913530	-62.219260	33.0	295021600	46.024150	-62.154850	35.0
294225826	45.931450	-62.379770	34.4	295003501	45.912940	-62.218280	33.0	295021700	46.023170	-62.153610	35.0
294225926	45.932930	-62.378780	34.9	295003601	45.912370	-62.217320	34.0	295021800	46.022150	-62.152340	35.0
294230026	45.934380	-62.37766									

295024100	45.998490	-62.122050	40.0	295042159	45.917730	-61.971750	38.9	295060258	45.922580	-61.762300	36.7
295024200	45.997460	-62.120720	40.0	295042259	45.917770	-61.969680	39.1	295060358	45.922630	-61.760230	36.2
295024300	45.996460	-62.119370	40.0	295042359	45.917820	-61.967680	38.9	295060458	45.922690	-61.758160	36.5
295024400	45.995470	-62.118010	41.0	295042459	45.917890	-61.965630	39.0	295060558	45.922760	-61.756090	36.1
295024500	45.994440	-62.116690	41.0	295042559	45.917950	-61.963540	38.8	295060658	45.922830	-61.754020	36.3
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295024700	45.992390	-62.114030	41.0	295042759	45.918020	-61.959430	39.2	295060858	45.922840	-61.749790	36.3
295024800	45.991400	-62.112630	41.0	295042859	45.918060	-61.957360	38.8	295060958	45.922840	-61.747650	36.1
295024900	45.990360	-62.111320	41.0	295042959	45.918090	-61.955280	39.0	295061058	45.922900	-61.745530	36.4
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295025100	45.988270	-62.108710	40.0	295043159	45.918140	-61.951170	38.8	295061258	45.923060	-61.741320	36.3
295025200	45.987280	-62.107320	40.0	295043259	45.918200	-61.949130	38.7	295061358	45.923120	-61.739220	36.3
295025300	45.986270	-62.105950	40.0	295043359	45.918240	-61.947060	39.3	295061458	45.923160	-61.737130	36.2
295025400	45.985210	-62.104690	40.0	295043459	45.918310	-61.945020	38.9	295061558	45.923220	-61.735050	36.0
295025500	45.984100	-62.103500	39.0	295043559	45.918350	-61.943020	39.0	295061658	45.923270	-61.732980	36.2
295025600	45.983060	-62.102230	40.0	295043659	45.918460	-61.941050	40.1	295061758	45.923340	-61.730920	36.1
295025700	45.982040	-62.100890	39.0	295043759	45.918500	-61.939030	40.2	295061858	45.923380	-61.728860	36.2
295025800	45.981040	-62.099530	39.0	295043859	45.918500	-61.937040	38.5	295061958	45.923420	-61.726780	36.0
295025900	45.979960	-62.098290	39.0	295043959	45.918560	-61.935010	38.3	295062058	45.923450	-61.724680	36.0
295030000	45.978950	-62.096960	39.0	295044059	45.918660	-61.932990	38.2	295062158	45.923510	-61.722580	36.2
295030100	45.977970	-62.095580	39.0	295044159	45.918740	-61.930970	39.8	295062258	45.923550	-61.720470	36.2
295030200	45.976920	-62.094250	39.0	295044259	45.918740	-61.928930	38.0	295062358	45.923610	-61.718370	36.2
295030259	45.975860	-62.092960	39.0	295044359	45.918740	-61.926870	38.0	295062458	45.923640	-61.716270	35.9
295030400	45.974900	-62.091560	39.0	295044459	45.918760	-61.924800	37.7	295062558	45.923690	-61.714180	36.3
295030500	45.973890	-62.090230	39.0	295044559	45.918780	-61.922730	37.7	295062658	45.923740	-61.712100	36.3
295030600	45.972810	-62.088980	38.9	295044659	45.918840	-61.920670	37.6	295062758	45.923820	-61.710080	36.1
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295030800	45.970710	-62.086390	39.4	295044859	45.919020	-61.916540	37.6	295062958	45.923990	-61.705990	36.2
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295031000	45.968630	-62.083790	39.4	295045059	45.919160	-61.912350	37.7	295063158	45.924010	-61.701850	36.2
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295031400	45.964570	-62.078330	40.1	295045459	45.919520	-61.903940	36.9	295063558	45.924190	-61.693590	36.3
295031459	45.963510	-62.077030	39.9	295045559	45.919630	-61.901880	37.1	295063658	45.924260	-61.691540	36.4
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295031859	45.959370	-62.071600	40.0	295045959	45.919510	-61.893560	39.9	295064058	45.924470	-61.683350	36.5
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295032159	45.956230	-62.067540	39.9	295050259	45.919690	-61.887360	37.2	295064358	45.924610	-61.677160	36.7
295032259	45.955220	-62.066140	40.1	295050359	45.919740	-61.885320	36.9	295064458	45.924650	-61.675060	36.5
295032359	45.954160	-62.064800	40.4	295050459	45.919800	-61.883250	36.7	295064558	45.924690	-61.672950	36.4
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295032559	45.951990	-62.062230	39.4	295050659	45.919950	-61.879070	36.8	295064758	45.924800	-61.668740	36.9
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295033159	45.945690	-62.054130	39.3	295051256	45.920140	-61.866590	39.5	295065358	45.925130	-61.655930	30.6
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295033859	45.938370	-62.044560	38.4	295051959	45.920500	-61.852160	39.0	295070058	45.928730	-61.654380	31.0
295033959	45.937340	-62.043250	38.3	295052058	45.920570	-61.850060	36.8	295070158	45.927730	-61.655180	30.9
295034059	45.936310	-62.041950	38.4	295052159	45.920620	-61.847950	36.7	295070258	45.926620	-61.656180	31.1
295034159	45.935290	-62.040650	38.0	295052259	45.920720	-61.845840	36.6	295070358	45.925530	-61.657300	31.6
295034259	45.934280	-62.039350	38.0	295052358	45.920800	-61.843730	36.7	295070458	45.924470	-61.658440	31.8
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295034559	45.931300	-62.035440	38.0	295052658	45.920900	-61.837310	36.5	295070758	45.921550	-61.662210	2.3
295034659	45.930290	-62.034160	37.7	295052758	45.920970	-61.835170	37.3	295070858	45.920580	-61.663500	0.0
295034759	45.929280	-62.032910	37.7	295052858	45.921030	-61.832990	36.5	295070958	45.919650	-61.664850	35.0
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295035059	45.926230	-62.028970	37.4	295053158	45.921150	-61.826410	36.7	295071258	45.916770	-61.668780	36.9
295035159	45.925190	-62.027600	37.5	295053258	45.921180	-61.824240	36.6	295071358	45.915780	-61.670040	36.1
295035259	45.924120	-62.026200	37.3	295053358	45.921190	-61.822070	36.3	295071458	45.914830	-61.671380	36.5
295035359	45.923080	-62.024760	37.5	295053458	45.921190	-61.819950	36.5	295071558	45.913900	-61.672780	36.5
295035459	45.922000	-62.023330	37.6	295053558	45.921260	-61.817820	36.7	295071658	45.912950	-61.674150	36.4
295035559	45.920870	-62.022000	37.9	295053658	45.921350	-61.815660	36.8	295071758	45.911970	-61.675440	36.1
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295074353	45.886300	-61.709080	36.0	295092457	45.851720	-61.588990	20.9
295074457	45.885250	-61.710510	0.0	295092557	45.851510	-61.587060	21.3
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295074657	45.883400	-61.713310	36.0	295092757	45.851100	-61.583190	22.3
295074757	45.882380	-61.714650	36.0	295092857	45.850800	-61.581290	22.4
295074857	45.881380	-61.716070	0.0	295092957	45.850520	-61.579390	21.8
295074957	45.880370	-61.717460	36.0	295093057	45.850300	-61.577480	20.4
295075057	45.879340	-61.718750	36.0	295093157	45.850110	-61.575570	14.8
295075157	45.878380	-61.720080	36.0	295093256	45.849910	-61.573640	17.5
295075257	45.877380	-61.721310	0.0	295093357	45.849680	-61.571710	16.0
295075357	45.876410	-61.722600	35.0	295093457	45.849420	-61.569790	16.3
295075457	45.875470	-61.723900	35.0	295093556	45.849180	-61.567870	15.9
295075557	45.874520	-61.725250	35.0	295093657	45.848950	-61.565950	0.0
295075655	45.873570	-61.726510	35.0	295093757	45.848720	-61.564040	18.2
295075757	45.872550	-61.727800	35.0	295093856	45.848580	-61.562200	14.8
295075857	45.871500	-61.729090	35.0	295093956	45.848340	-61.560330	13.5
295075957	45.870560	-61.730420	4.0	295094056	45.850210	-61.559640	13.4
295080057	45.869610	-61.731750	34.1	295094156	45.851300	-61.559290	13.8
295080157	45.868590	-61.733040	33.9	295094256	45.852430	-61.558960	14.5
295080257	45.867540	-61.734320	33.8	295094356	45.853580	-61.558730	16.8
295080357	45.866420	-61.735430	33.6	295094456	45.854740	-61.558550	16.6
295080457	45.865250	-61.736360	33.7	295094556	45.855920	-61.558370	18.0
295080557	45.864540	-61.737640	33.4	295094656	45.857090	-61.558190	16.6
295080657	45.864430	-61.739190	33.1	295094756	45.858260	-61.558050	17.0
295080757	45.864970	-61.740680	33.2	295094856	45.859440	-61.557870	17.5
295080857	45.866350	-61.740940	33.4	295094956	45.860610	-61.557690	17.8
295080956	45.867480	-61.739910	33.5	295095056	45.861790	-61.557420	18.7
295081057	45.868170	-61.738200	33.6	295095156	45.862980	-61.557160	18.1
295081157	45.868490	-61.736270	34.0	295095256	45.864250	-61.556910	19.8
295081257	45.868390	-61.734230	33.9	295095356	45.865610	-61.556700	19.7
295081357	45.868110	-61.732270	34.1	295095456	45.867030	-61.556420	19.3
295081457	45.868020	-61.730380	34.0	295095556	45.868480	-61.556100	19.2
295081557	45.867660	-61.728460	33.9	295095656	45.869950	-61.555760	18.4
295081657	45.867390	-61.726400	34.4	295095756	45.871440	-61.555490	18.5
295081757	45.867260	-61.724350	34.3	295095856	45.872970	-61.555280	18.4
295081857	45.866970	-61.722230	34.2	295095956	45.874500	-61.555000	16.9
295081957	45.866710	-61.720120	34.2	295100056	45.876040	-61.554680	14.9
295082057	45.866560	-61.718120	34.8	295100156	45.877540	-61.554410	13.9
295082157	45.866340	-61.716250	34.8	295100252	45.878980	-61.554140	13.7
295082257	45.866100	-61.714390	34.6	295100356	45.880640	-61.553790	13.4
295082357	45.865890	-61.712500	34.8	295100456	45.882160	-61.553480	12.6
295082457	45.865680	-61.710650	34.6	295100556	45.883700	-61.553150	10.9
295082557	45.865480	-61.708820	34.8	295100656	45.885250	-61.552800	10.6
295082657	45.865250	-61.706790	35.0	295100756	45.886810	-61.552510	11.3
295082757	45.865010	-61.704710	35.1	295100856	45.888380	-61.552230	16.0
295082857	45.864780	-61.702560	35.0	295100956	45.889960	-61.551940	16.0
295082957	45.864540	-61.700440	35.4	295101056	45.891540	-61.551650	10.1
295083057	45.864310	-61.698290	35.1	295101156	45.893110	-61.551380	9.7
295083157	45.864120	-61.696190	35.0	295101256	45.894670	-61.551130	12.7
295083257	45.863960	-61.694140	35.0	295101356	45.896210	-61.550740	15.9
295083357	45.863690	-61.692110	34.9	295101456	45.897750	-61.550350	18.0
295083457	45.863380	-61.690110	34.9	295101553	45.899180	-61.550420	18.0
295083557	45.863150	-61.688110	34.5	295101756	45.901290	-61.553370	10.5
295083657	45.862950	-61.686080	34.2				
295083757	45.862680	-61.684100	34.3				
295083857	45.862360	-61.682060	34.0				
295083957	45.862130	-61.680030	34.3				
295084057	45.861930	-61.678060	34.0				
295084157	45.861710	-61.676090	33.6				
295084257	45.861520	-61.674070	32.9				
295084357	45.861280	-61.672170	32.9				
295084457	45.861050	-61.670190	32.0				
295084557	45.860810	-61.668180	31.3				
295084657	45.860580	-61.666150	30.6				
295084757	45.860400	-61.664090	28.3				
295084857	45.860160	-61.662040	27.1				
295084957	45.859850	-61.660000	27.6				
295085057	45.859540	-61.657940	26.7				
295085157	45.859300	-61.655860	25.8				
295085257	45.859130	-61.653760	25.3				
295085357	45.858920	-61.651650	21.0				
295085457	45.858700	-61.649550	21.5				
295085557	45.858440	-61.647450	20.5				
295085657	45.858180	-61.645340	15.9				
295085757	45.857940	-61.643230	18.0				
295085857	45.857730	-61.641120	18.7				
295085957	45.857460	-61.639020	19.3				
295090057	45.857170	-61.636900	18.1				
295090157	45.856940	-61.634770	17.8				
295090257	45.856700	-61.632650	17.4				
295090357	45.856450	-61.630520	19.4				
295090457	45.856200	-61.628380	21.3				
295090557	45.855980	-61.626220	22.0				
295090657	45.855770	-61.624110	22.7				
295090757	45.855570	-61.622060	23.2				
295090857	45.855340	-61.620050	19.7				
295090957	45.855090	-61.618080	17.9				
295091057	45.854840	-61.616120	16.8				
295091157	45.854610	-61.614150	16.7				
295091257	45.854410	-61.612210	17.1				
295091357	45.854180	-61.610280	17.7				
295091457	45.853930	-61.608350	18.2				
295091557	45.853650	-61.606420	18.4				
295091657	45.853420	-61.604490	19.2				
295091757	45.853200	-61.602550	20.0				
295091857	45.853030	-61.600600	20.2				
295091957	45.852830	-61.598660	20.3				
295092057	45.852580	-61.596730	20.6				
295092157	45.852300	-61.594800	20.3				
295092257	45.852070	-61.592850	20.1				
295092357	45.851910	-61.590910	20.5				