FLIGHT SUMMARY REPORT

Flight #: 90-031

Date: 12 December 1989

Sensor Package: Wild-Heerbrug RC-10

Area(s) Covered: Texas

Investigator(s): Handley, U.S. Fish and Wildlife

Aircraft #: 709

Flight Request: 90R254

Julian Date: 346

SENSOR DATA

Accession #:	03982
Sensor ID #:	076
Sensor Type:	RC-10
Focal Length:	12" 304.89 mm
Film Type:	High Definition Aerochrome IR SO-131
Filtration:	cc .10B
Spectral Band:	510-900 nm
f Stop:	4
Shutter Speed:	1/125
# of Frames:	384
% Overlap:	60
Quality:	Excellent
Remarks:	-----

Airborne Science and Applications Program

The Airborne Science and Applications Program (ASAP) is supported by three ER-2 high altitude Earth Resources Survey aircraft. These aircraft are operated by the High Altitude Missions Branch at NASA-Ames Research Center, Moffett Field, California. The ER-2s are used as readily deployable high altitude sensor platforms to collect remote sensing and *in situ* data on earth resources, celestial phenomena, atmospheric dynamics, and oceanic processes. Additionally, these aircraft are used for electronic sensor research and development and satellite investigative support.

The ER-2s are flown from various deployment sites in support of scientific research sponsored by NASA and other federal, state, university, and industry investigators. Data are collected from deployment sites in Kansas, Texas, Virginia, Florida, and Alaska. Cooperative international scientific projects have deployed the aircraft to sites in Great Britain, Australia, Chile, and Norway.

Photographic and digital imaging sensors are flown aboard the ER-2s in support of research objectives defined by the sponsoring investigators. High resolution mapping cameras and digital multispectral imaging sensors are utilized in a variety of configurations in the ER-2s' four pressurized experiment compartments.

Camera Systems

Various camera systems and films are used for photographic data collection. Film types include high definition color infrared, natural color, and black and white emulsions. Available photographic systems are as follows:

- Wild-Heerbrug RC-10 metric mapping camera
  - 9 x 9 inch film format
  - 6 inch focal length lens provides area coverage of 16 x 16 nautical miles from 65,000 feet
  - 12 inch focal length lens provides area coverage of 8 x 8 nautical miles from 65,000 feet

- Hycon HR-732 large scale mapping camera
  - 9 x 18 inch film format
  - 24 inch focal length lens provides area coverage of 4 x 8 nautical miles from 65,000 feet

- Iris II Panoramic camera
  - 4.5 x 34.7 inch film format
  - 24 inch focal length lens
  - 90 degree field of view provides area coverage of 2 x 21.4 nautical miles from 65,000 feet

CAMERA FLIGHT LINE DATA
FLIGHT NO. 90-031

Accession No. 03982

Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
A - B	3984-4011	17:44:55	17:57:47	65000/19800	Clear; oblique and smeared (frame 3998); oblique (frames 4008-4011)
_____	4012-4022	17:58:16	18:03:01	"	Clear; oblique frames
C - D	4023-4038	18:03:29	18:10:36	"	Clear
_____	4039-4044	18:11:04	18:13:26	"	Clear; oblique frames
E - F	4045-4050	18:13:54	18:16:16	"	Clear
_____	4051-4052	18:16:44	18:17:13	"	Clear; oblique frames
G - H	4053-4060	18:17:41	18:20:59	"	Clear
_____	4061-4065	18:21:28	18:23:21	"	Clear; oblique frames
I - J	4066-4071	18:23:49	18:26:11	"	Clear
_____	4072-4074	18:26:39	18:27:35	"	Clear; oblique frames

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Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
K - L	4075-4076	18:28:03	18:28:32	65000/19800	Clear
_____	4077-4079	18:29:00	18:29:50	"	Clear; oblique frames
M - N	4080-4083	18:30:25	18:31:49	"	Clear
_____	4084-4085	18:32:17	18:32:46	"	Clear; oblique frames
O - P	4086-4087	18:33:14	18:33:42	"	Clear
_____	4088-4092	18:34:11	18:36:03	"	Clear; oblique frames
Q - R	4093-4096	18:36:31	18:37:56	"	Clear
_____	4097-4098	18:38:24	18:38:52	"	Clear; oblique frames; smeared (frame 4098)
S - T	4099-4100	18:39:20	18:39:48	"	Clear
_____	4101-4103	18:40:17	18:41:13	"	Clear; oblique frames

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Sensor # 076

Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
U - V	4104-4110	18:41:41	18:44:30	65000/19800	Clear
_____	4111-4112	18:44:57	18:45:26	"	Clear; oblique frames
W - X	4113-4118	18:45:54	18:48:14	"	Clear
_____	4119-4123	18:48:42	18:50:35	"	Clear; oblique frames
Y - Z	4124-4128	18:51:03	18:52:55	"	Clear
_____	4129-4131	18:53:23	18:54:19	"	Clear; oblique frames
1 - 2	4132-4137	18:54:47	18:57:07	"	Clear
_____	4138-4139	18:57:35	18:58:03	"	Clear; oblique frames
3 - 4	4140-4147	18:58:31	19:01:47	"	Clear
_____	4148	19:02:15	_____	"	Clear; oblique frames

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Check Points	Frame Numbers	Time (GMT-hr, min, sec)		Altitude, MSL feet/meters	Cloud Cover/Remarks
		START	END		
5 - 6	4149-4150	19:02:43	19:03:11	65000/19800	Clear
_____	4151-5152	19:03:39	19:04:07	"	Clear; oblique frames
7 - 8	4153-4194	19:04:35	19:23:40	"	Clear; 10% cirrus (frame 4194)
_____	4195-4202	19:24:08	19:27:23	"	10-100% cirro cumulus (frame 4195)
9 - 10	4203-4255	19:27:50	19:51:57	"	10% cirro cumulus (frames 4203-4209)
_____	4256	19:52:25	_____	"	Clear; oblique frames
11 - 12	4257-4266	19:52:52	19:57:02	"	Clear
_____	4267-4269	19:57:30	19:58:25	"	Clear; oblique frames
13 - 14	4270-4294	19:58:54	20:00:50	"	Clear
_____	4295-4301	20:10:27	20:13:14	"	Clear; oblique frames

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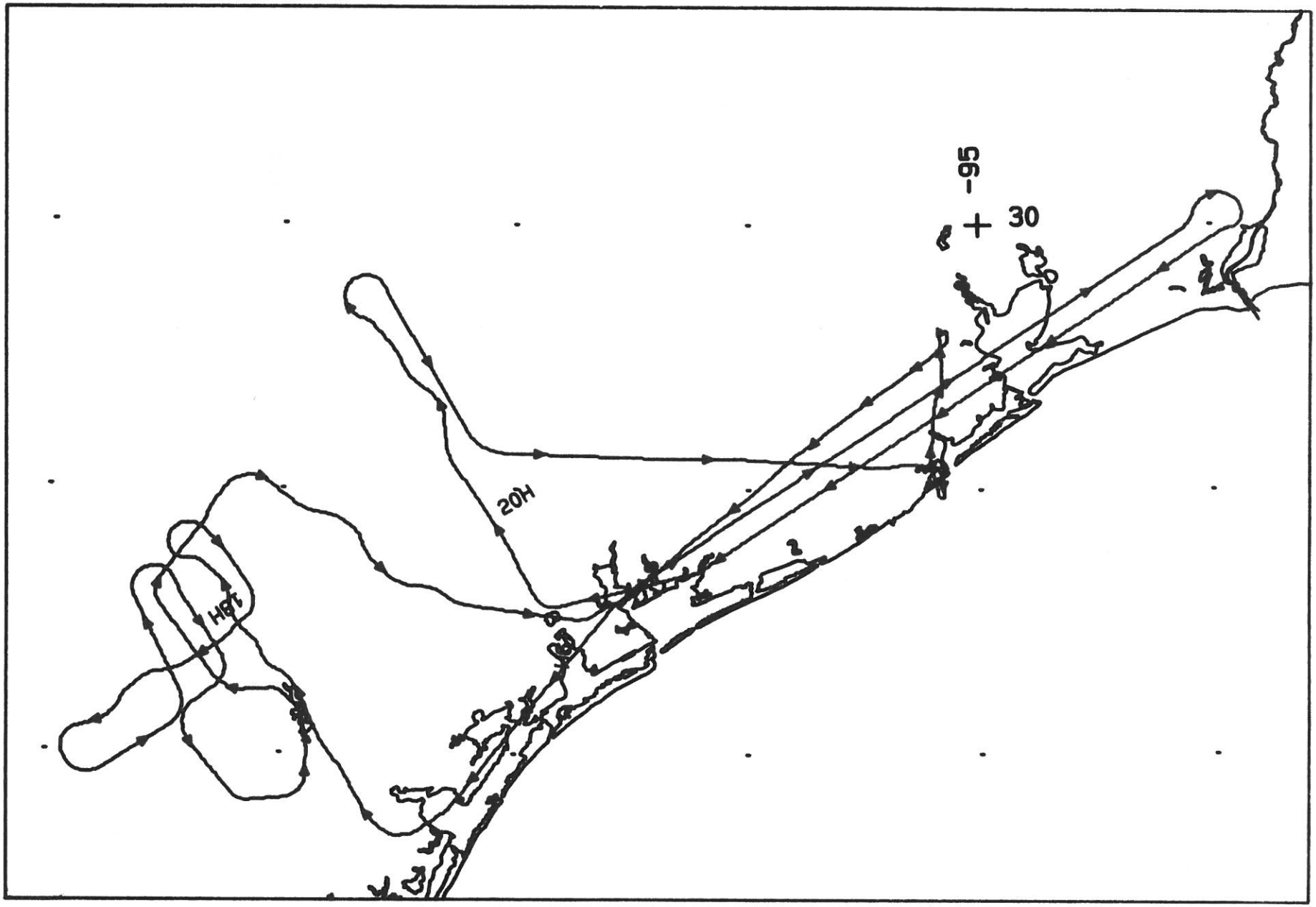
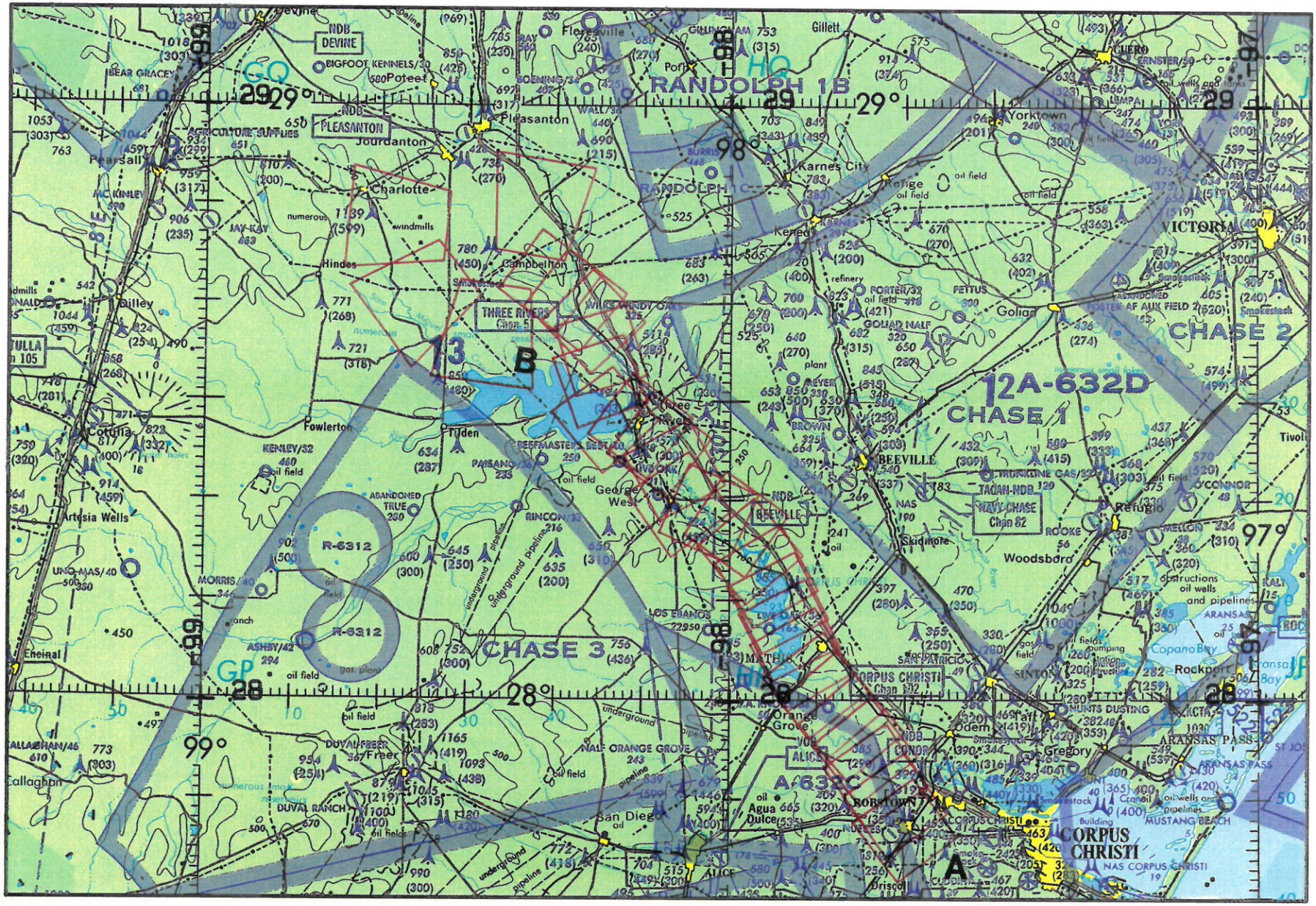
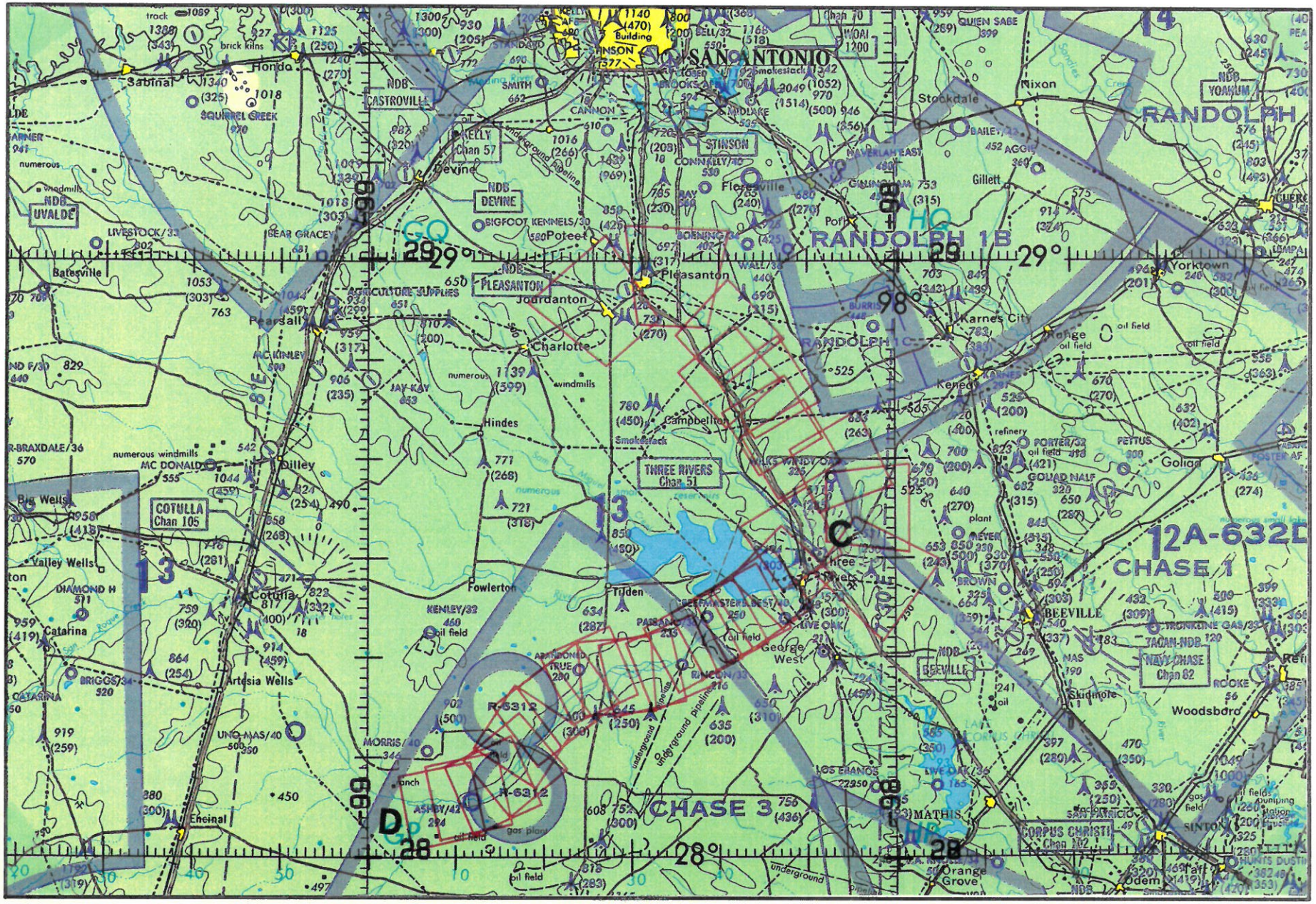
Check Points	Frame Numbers	Time (GMT-hr, min, sec) START	Time (GMT-hr, min, sec) END	Altitude, MSL feet/meters	Cloud Cover/Remarks
15 - 16	4302-4313	20:13:41	20:18:46	65000/19800	Clear
_____	4314-4316	20:19:14	20:20:09	"	Clear; oblique frames
17 - 18	4317-4367	20:20:37	20:43:42	"	Clear; begin descent



FLIGHT 90-031 12 December 1989 A/C 709 RC-10



FLIGHT 90-031 12 December 1989 A/C 709 RC-10 80-131 Accession # 03982 Fms 3984-4011 ONC H-23



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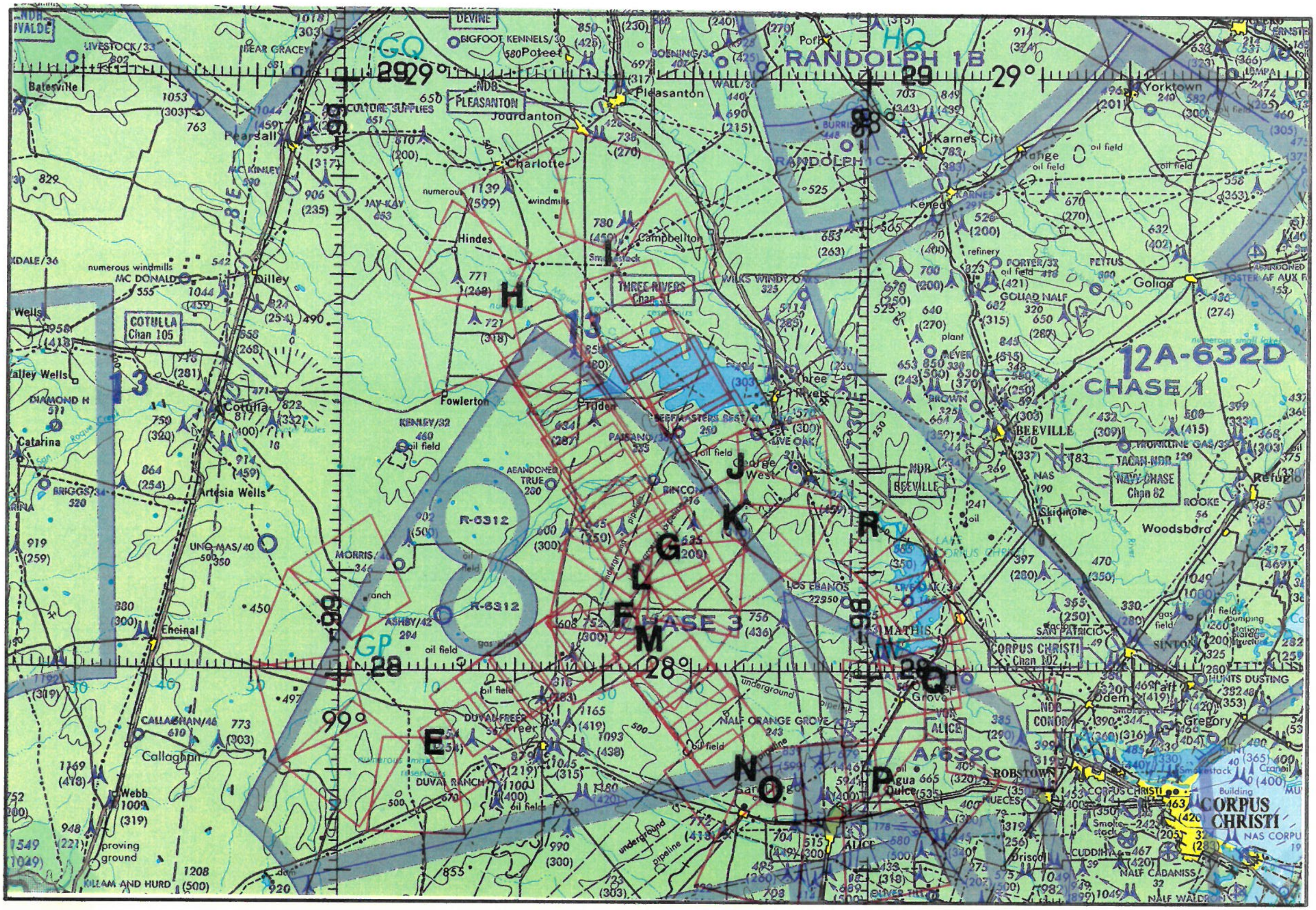

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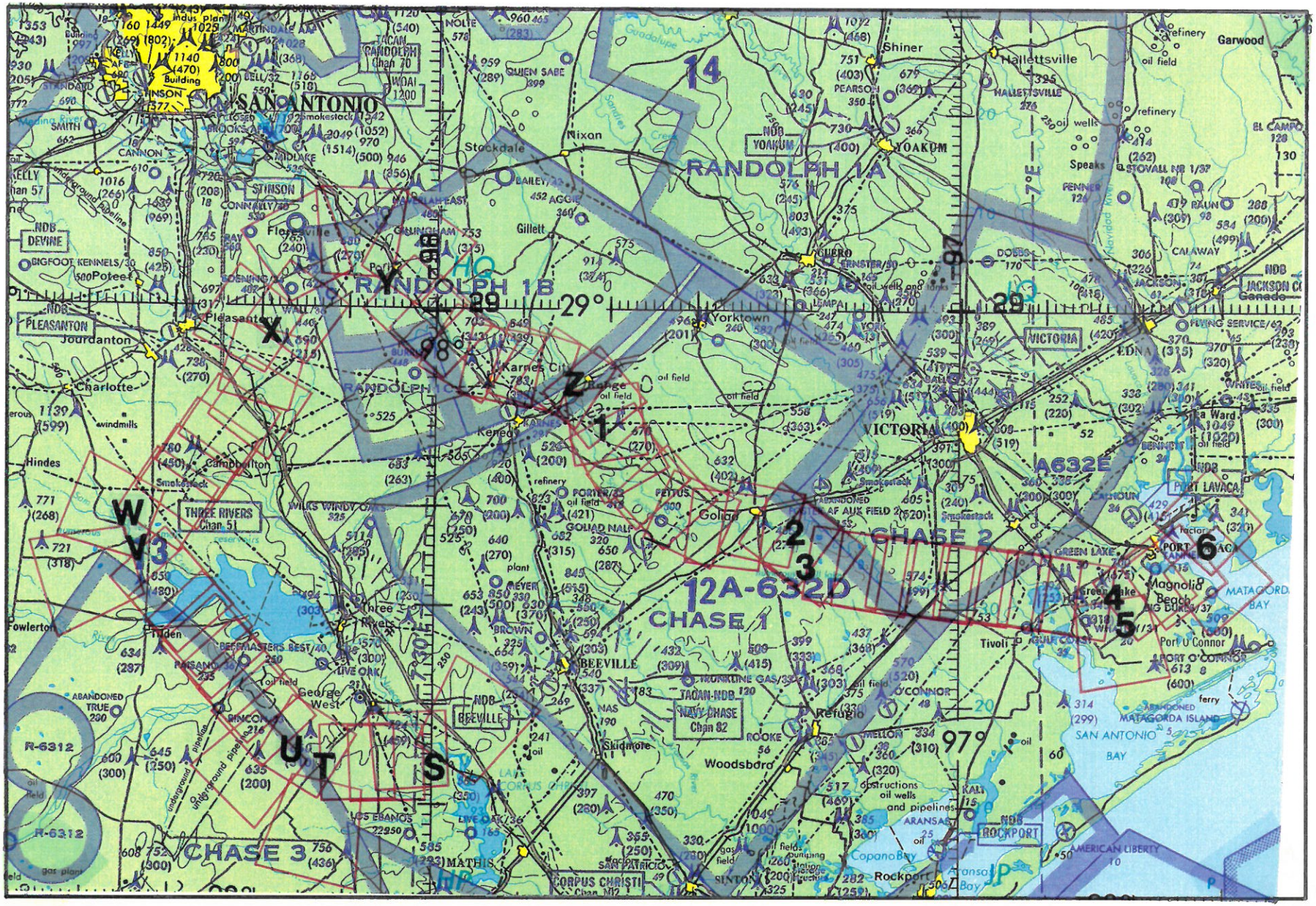

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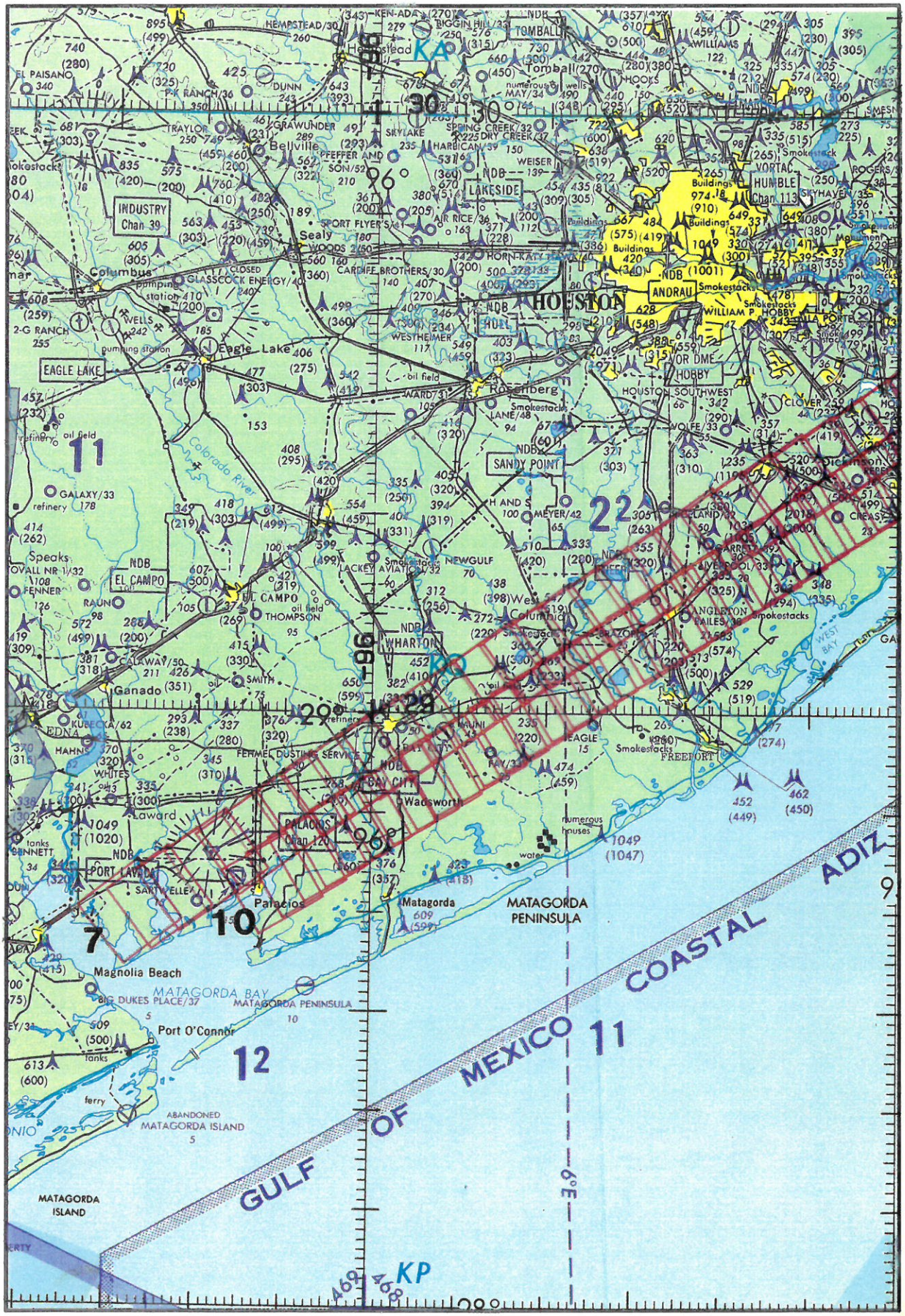
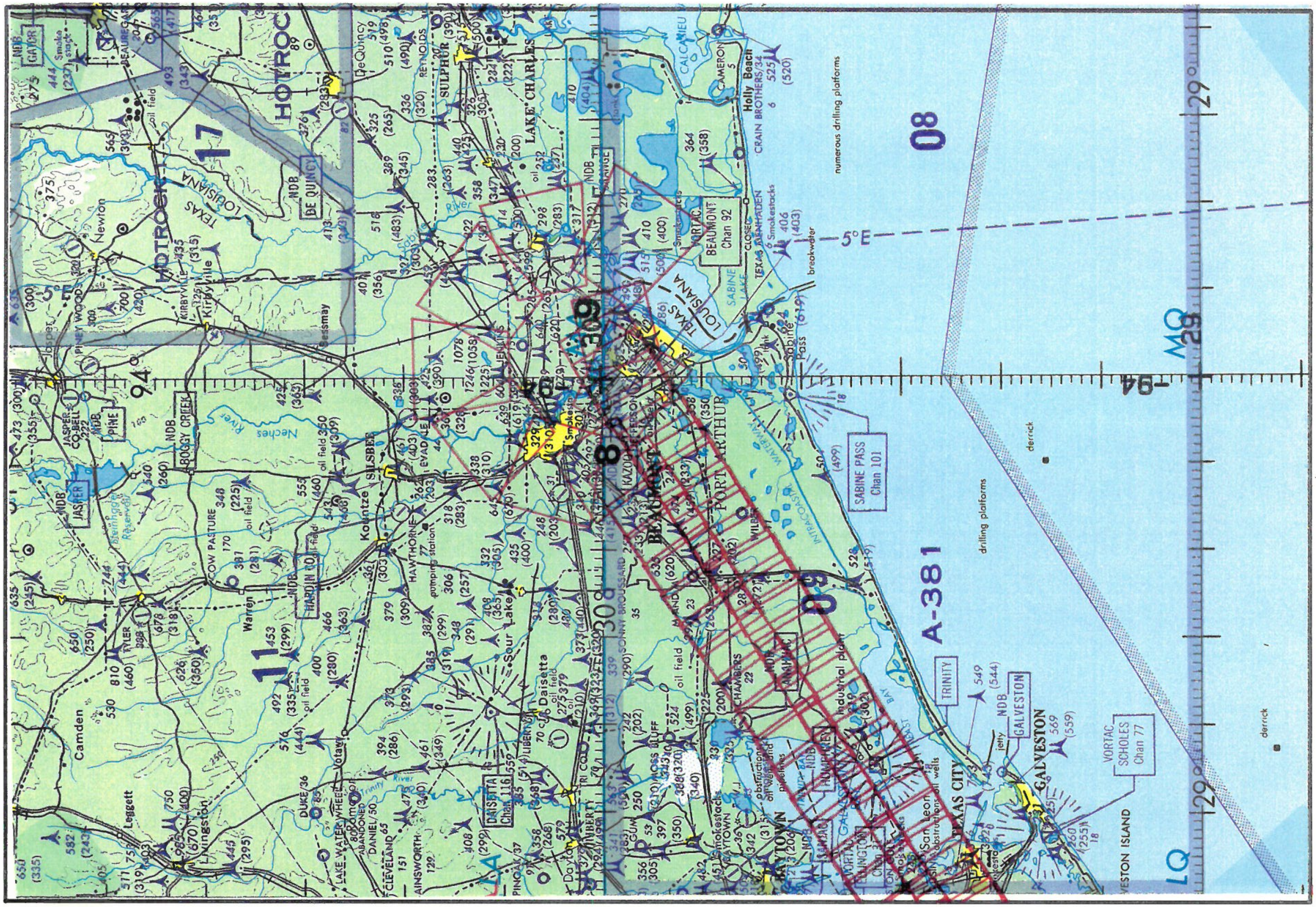


FLIGHT 90-031 12 December 1989 A/C 709 RC-10 90-131 Accession # 03982 Fms 4153-4255 ONC H-24



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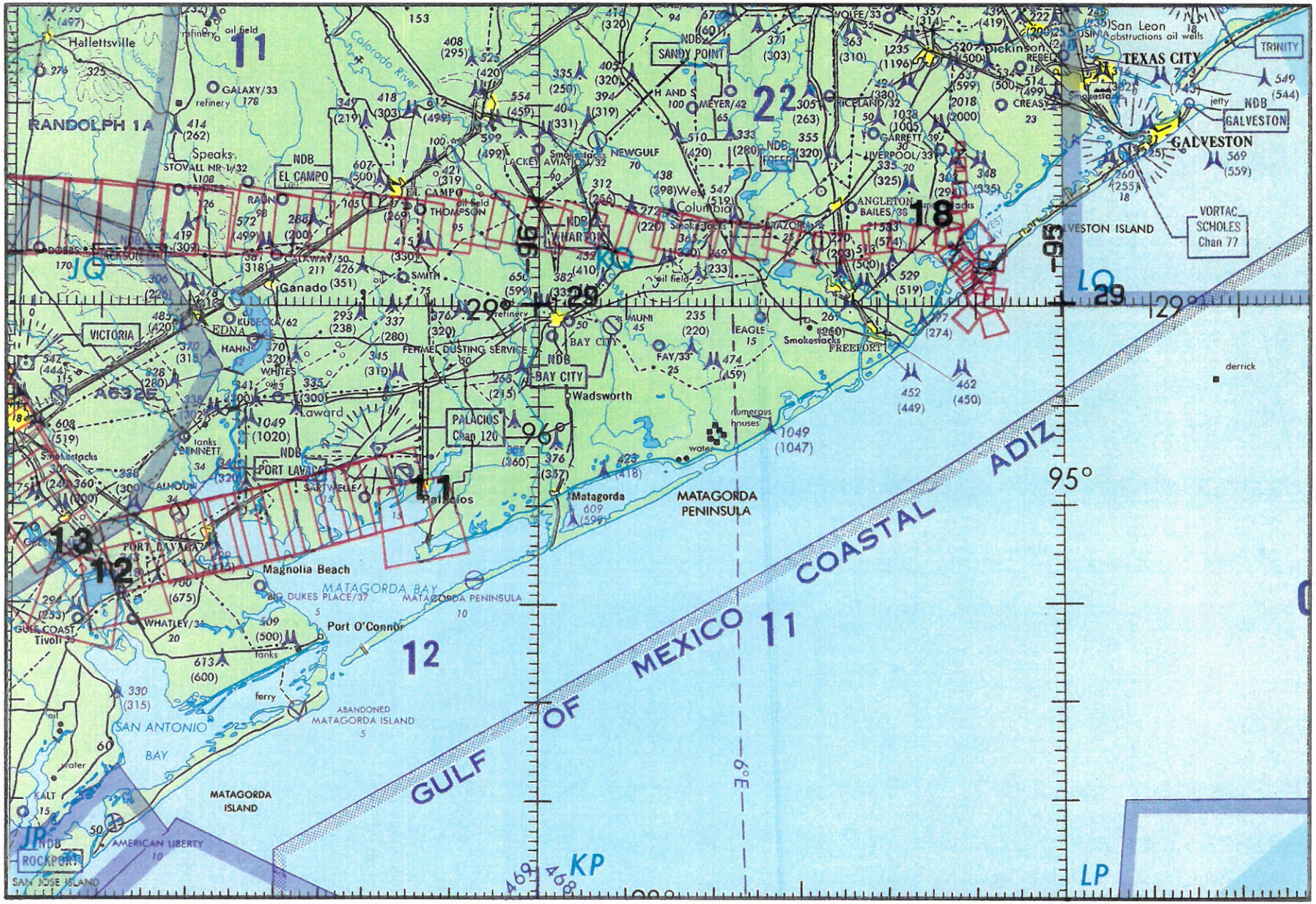

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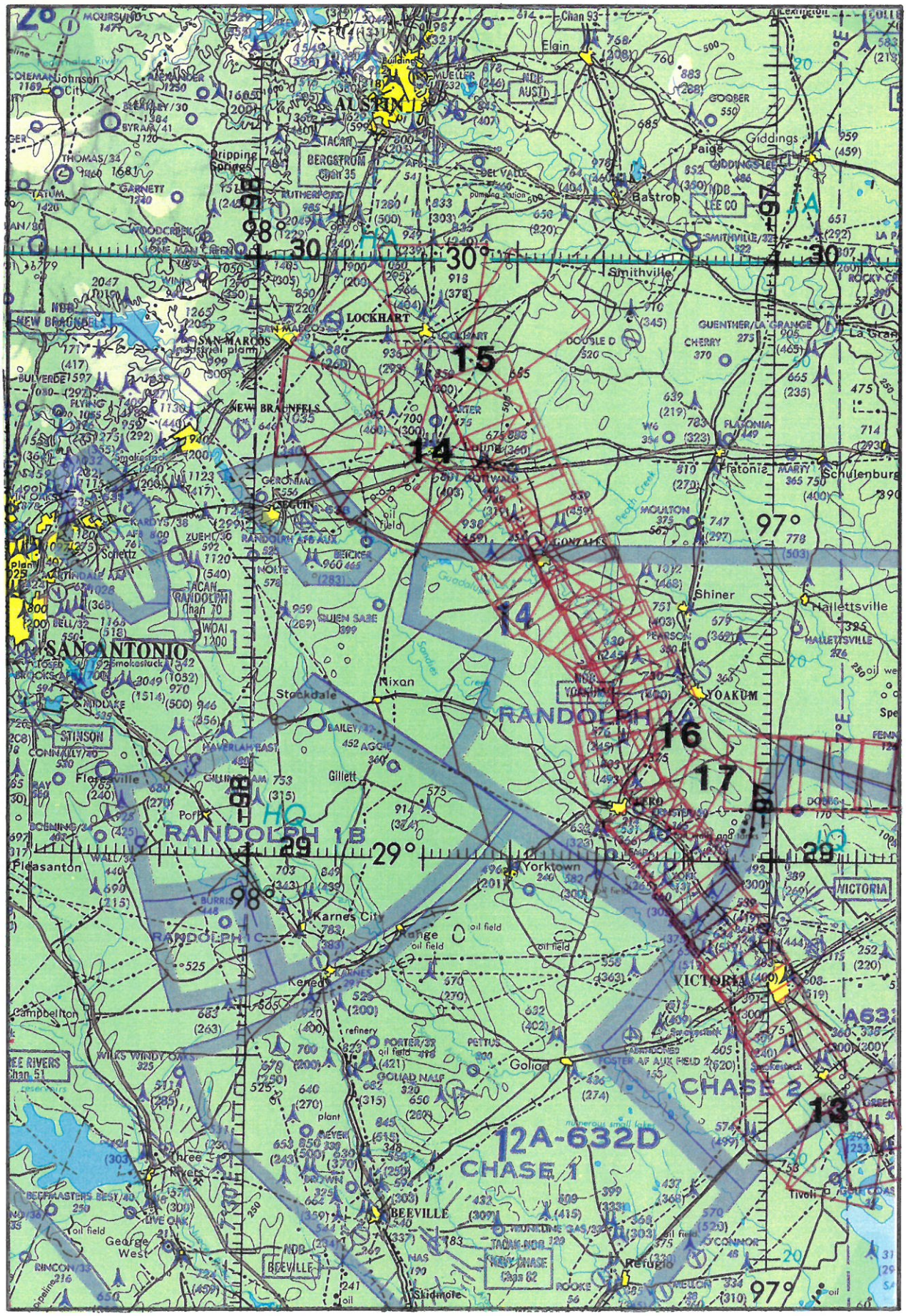

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