

ATTACHMENT 1

**Calculation 32-2400569-00,
"Aircraft Hazard Risk Determination"**

A**FRAMATOME ANP****CALCULATION SUMMARY SHEET (CSS)**Document Identifier 32 - 2400569 - 00Title Aircraft Hazard Risk Determination**PREPARED BY:****REVIEWED BY:**
METHOD: ☒ DETAILED CHECK ☐ INDEPENDENT CALCULATIONNAME W.S. YEUNGSIGNATURE TITLE Advisory Eng.DATE 10/17/03

COST CENTER _____

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10/17/03

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PURPOSE AND SUMMARY OF RESULTS:

This calculation evaluates the yearly probability of aircraft hazard for an uranium enrichment facility, to be built near Eunice, Mexico. The probability of aircraft crashing onto the proposed site was determined to be less than 10^{-6} per year. Based on this result, it is concluded that aircraft crashing onto the proposed site is not a credible event in accordance with 10 CFR Part 70.

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THE DOCUMENT CONTAINS ASSUMPTIONS THAT
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NO

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TABLE OF CONTENTS

1.0	PURPOSE	4
2.0	METHOD OF ANALYSIS	4
3.0	ACCEPTANCE CRITERIA	4
4.0	ANALYTICAL INPUT SUMMARY (AIS)	4
5.0	ANALYSIS AND RESULTS	6
5.1	Evaluation of Nearby Airports	6
5.3	Evaluation of Military Training Route.....	7
5.4	Holding Patterns.....	7
5.5	Evaluation of Airway Traffic	7
6.0	CONCLUSIONS.....	10
7.0	REFERENCES.....	10
8.0	LIST OF ATTACHMENTS	10
	Attachment A: FOIA Transmittal from FAA in Response to FANP FOIA Request.....	13
	Attachment B: Reduction of Flight Data.....	25
	Attachment C: Airport Master Records	28
	Attachment D: NTSB Commercial Aircraft Accident Rate Data 1987-1997	35
	Attachment E: Geographical Coordinates of Proposed NEF Site.....	36

1.0 PURPOSE

The purpose of this calculation is to evaluate the hazard at the proposed National Enrichment Facility (NEF) in Eunice, New Mexico due to potential aircraft transits past the site. This analysis is done as part of the Integrated Safety Assessment (ISA) for the proposed site, as required by 10 CFR Part 70 (Reference 1). The results of this analysis will be used in the Integrated Safety Assessment (ISA).

2.0 METHOD OF ANALYSIS

This analysis follows the methodology as described in Standard Review Plan (SRP) Section 3.5.1.6 for aircraft hazards evaluation (Reference 2). SRP 3.5.1.6 methodology is accepted by the USNRC to assess the probability of hazards due to aircraft transits at nuclear facilities.

3.0 ACCEPTANCE CRITERIA

Aircraft accident is an external event. In accordance with 10 CFR Part 70 (70.61), an external event is considered not credible if the probability of the event initiation is less than 10^{-6} per year. If the probability is greater than 10^{-6} per year, the event is considered credible, and must be considered further.

4.0 ANALYTICAL INPUT SUMMARY (AIS)

The major analysis and input assumptions are given here. Specific assumptions associated with the methodology as described in Reference 2 will be stated in the analysis section (Section 5.0).

1. The critical facility area consists of the Tails Storage Pad, the Separations Building, the Centrifuge Assembly Building (CAB), and the Technical Services Building (TSB). Figure 1 (Reference 3) shows the site plan for the proposed enrichment plant. The Tails Storage Pad is about 480 ft by 2240 ft, the Separations Building including the CAB is about 800 ft by 880 ft, and the area where the TSB is located is about 240 ft by 320 ft. The total target area is therefore $(480 \times 2240 + 800 \times 880 + 240 \times 320) = 1,856,000$ sq.ft, or about 40 acres. For conservatism, this analysis added approximately 25% margin and used 50 acres as the target area.
2. Accident data for commercial traffic defined under 14 CFR 121 operation (see Reference 4) was assumed when evaluating the crash probability associated with air traffic along federal airways. This assumption yielded crash probability that is higher than the value recommended by SRP 3.5.16, and is

therefore justified. Note that Reference 4 gives data from 1987 to 1997. The most recent data available from the National Transportation Safety Board (NTSB) covers up to 1999 (Reference 9). In addition, NTSB no longer presents accident rate data based on miles flown. Hence Reference 9 is not directly usable in this evaluation. Examination of Reference 9 graphical data shows that the number of accidents for 14 CFR 121 operation for years 1998 and 1999 are both bounded by that for 1997. Thus, data from Reference 4 are acceptable, and reflect the most current data available from NTSB.

3. The target area has been conservatively estimated at 50 acres (see Item 1 above). Therefore, there is no need to additionally account for any shadow and skid area in the evaluation of the effective target area.
4. There is one low-level airway that passes within about 5 nautical miles of the center of the proposed sites. This is V68 (see Figure 2 adapted from Reference 5). Air traffic data along individual airways are not generally maintained by the Federal Aviation Administration (FAA). Instead, air traffic data in the sector in which the proposed site is located is available and has been obtained from the FAA (Reference 6, also in Attachment A). The applicable sector is Sector 40 (MAF-L). Figure A-1 shows the Sector map. Since most aircraft presently navigate on direct routes or radar vectors, it is reasonable to assume that the flights are randomly distributed over the Sector area. The area of Sector 40 has been estimated from Figure A-1 in Attachment A to be about 10000 square nautical miles (see Attachment B). This is equivalent to a circle of radius $(10000/\pi)^{1/2}$ or 56 nautical miles (about 64 statute miles). The analysis assumes Sector MAF-L 40 can be approximated as a circle of radius 64 statute miles. The number of flights on an average day for 2002 is 134, and the number of flights for a busy day is 178 (Reference 6). This analysis conservatively used the busy day data for the site. Similar data for 2003 is not yet available. However, in light of the conservatism in using the busy day data, any potential increase in air traffic from 2002 to 2003 will be accommodated by the conservatism.
5. The proposed site is also near Sector LBB-L/REE-L (Sector 43/64) as shown in Figure A-1. Hence the air traffic in this Sector can have an impact on the analysis. From Reference 6, the busy day traffic for Sector 43/64 is 170 in 2002. Therefore, it is concluded that air traffic in Sector 43/64 will not adversely impact the calculation, and use of Sector 40 data alone is adequate.
6. The geographical center of the proposed site is assumed to be 32°26'1.74" N and 103°04'43.47" W (see Attachment E).

5.0 ANALYSIS AND RESULTS

5.1 Evaluation of Nearby Airports

There are six (6) airports within 20 to 25 nautical miles of the proposed site. Figure 2, taken from the L-4 IFR Enroute Aeronautical Chart, shows the location of these airports. The largest international airport nearest to the site is the Midland International Airport in Texas, which is about 50 nautical miles east-southeast of the site. This is judged sufficiently far from the site to have any significant impact.

Table 1 lists the six airports and their approximate distances from the site, together with the total number of operations as allowed under SRP 3.6.1.5 and as reported in the FAA-5010 reports (Reference 7, in Attachment C). Per SRP 3.6.1.5, Item II.1(a), the probability of aircraft accidents is less than about 10^{-7} per year if the annual number of operations is less than $1000 D^2$ for airport located beyond 10 miles, where D is the plant-to-airport distance in miles. Since all the airports identified in Table 1 are located more than 10 miles from the proposed site, this SRP guidance is applicable. From Table 1, it is concluded that the presence of these airports is not significant to plant safety. No further analysis is required with regard to the impact of nearby airports.

Table 1
Evaluation of Risk Posed by Nearby Airports

Airport	D (mile) ^a , direction	Location	No. Operations ^b	SRP Limit ^c
Hobbs/Lea County Regional Airport	25, NW	Hobbs, NM	18,572	625,000
Eunice Airport	15, W	Eunice, NM	480	225,000
Lea County/JAL	25, SSW	Jal, NM	4,200	625,000
Andrews County Airport	30, E	Andrews, TX	6,000	900,000
Gaines County Airport	30, NE	Seminole, TX	12,250	900,000
Seminole Spraying Service (private)	30, NE	Seminole, TX	2,000	900,000

^a distance (converted to statute mile from nautical mile) and direction are estimated based on Figure 2

^b from FAA-5010 reports (Attachment C), including military operations

^c $1000 D^2$, per SRP 3.5.1.6

5.3 Evaluation of Military Training Route

There are no military facilities within 20 miles of the proposed site. There is military operation out of the Lea County Regional Airport only (see FAA-5010 report for this airport in Attachment C). As shown in Table 1, the number of operations is far below the SRP allowable limit. There three military routes, IR-128 (maximum altitude of 13000 feet), IR-178 (maximum altitude of 15000 feet) and IR-180 (maximum altitude of 17000 feet) within a 30 nautical mile radius of the proposed site (see Figure 2 and Reference 5). The closest approach (by IR-128 and IR-180) is about 14 nautical miles southwest from the site geographical center. This is not expected to pose any hazard to the proposed facility, since the routes are more than 5 statute miles from the site, per SRP

3.6.1.5II.1(b). Note that Reference 6 indicates both IR-128 and IR-180 are located within 8 miles of the site. However, it is concluded that the FAA information is only approximate, and the closest approach is about 14 nautical miles as determined from Reference 5. Military operations in nearby airports have already been included in the evaluation given in Section 5.2. Hence, no further analysis is required with regard to the impact of military training route.

5.4 Holding Patterns

Per SRP 3.5.1.6 Item II.1(c) (Reference 2), holding patterns within 2 statute miles of the site need to be evaluated. From Table 1, the airports nearest to the site are, in order, Eunice Airport, Hobbs/Lea County Regional Airport, Lea County/JAL Airport, Andrews County Airport, Gaines County Airport, and Seminole Spraying Service. All but Eunice Airport are more than 20 miles away from the site, and landing procedure is not usually initiated until the aircraft is within 20 miles (the approach charts for the nearest major airport, Hobbs/Lea County show that landing procedure is usually initiated within 10 nautical miles. See Reference 6 in Attachment A, Figures A-2 through A-8). Therefore, there is no need to evaluate these airports for holding patterns. For Eunice and Lea/JAL airports, there are no specific holding patterns according to FAA (Reference 6). Since it has been determined in Section 5.2 that air traffic at both Eunice and Lea/JAL airports pose no concern per SRP guidelines, and Reference 6 indicates that no specific holding patterns exist for either airport, the issue of holding patterns is not relevant to either airport. No further analysis is required with regard to the impact of holding patterns.

5.5 Evaluation of Airway Traffic

A low-level federal airway (V-68) passes within 5 nautical miles, northeast of the proposed site center (see Figure 2). The probability, P , of an aircraft flying along either airway crashing onto the proposed site can be conservatively estimated from the following expression, as given in SRP 3.5.1.6:

$$P = C \times N \times A / w \quad (\text{Eq. 1})$$

where:

C = inflight crash rate per mile for aircraft using the airway,
 N = number of flights per year along the airway,
 A = effective target area (square miles), and
 W = width of airway (miles) [plus twice the distance from the airway edge to the site when the site is outside the airway]

SRP 3.5.1.6 mentioned a value of $C=4 \times 10^{-10}$ per mile flown for commercial aircrafts. The published values for fatal accident rate from 1987 to 1997, according to the National Transportation Safety Board (NTSB) (Reference 4, Attachment D) are within 2.0×10^{-10} and 2.4×10^{-9} . This analysis uses the maximum value of 2.4×10^{-9} for conservatism. As discussed in Section 5.2, Item 2, the accident data for 1997 bounds the data for 1998 and 1999. Hence, the information used in this analysis represents the most current information publicly available from the NTSB official website. Note also that this value is higher than the SRP recommended value of 4×10^{-10} .

The FAA has provided air traffic count data for the peak day, one busy day and an average day for 2002 for Sector 40 (MAF-L) in which the site is located. For 2003, FAA also transmitted air traffic data for two random days. Unfortunately, the 2003 data are only for a limited time period (one set of data is for 2 hours and the other for 4 1/2 hours). Therefore, the 2003 data was not used in this analysis. Table 2 summarizes the 2002 data from FAA (Reference 2 and Attachment A).

Table 2
 Number of Flights in Sector 40 MAF-L

Date	Total Number of Flights
Peak Day	46
Busy Day	178
Random Day	134

The data for peak day is unexpectedly low, probably due to the fact that Sector 40 was not open for traffic count during the chosen peak day in 2002. For conservatism, this analysis uses the busy day data. Hence the number of flights per day in Sector 40 is conservatively taken to be 178. Note that the data is applicable to the entire Sector 40.

Not all of these flights fly over the site. It is reasonable to assume that these flights are randomly distributed within the entire Sector area (Assumption 4). Therefore, a flight density can be defined as

$$F = N/\pi R^2$$

where N is the number of flights in the sector and R is 64 miles (see Assumption 4). Thus the number of flights within 10 miles is

$$a = F \pi r^2 = N(r/R)^2$$

where r is 10 miles. The remaining are outside the 10 mile radius, and is

$$b = N \{1 - (r/R)^2\}$$

The fraction of flights that will intersect the 10 mile area is calculated to be 0.1, (see Attachment B). Hence the total number of flights that falls within the 10 mile radius is

$$a + 0.1b = N \{ (r/R)^2 + 0.1[1 - (r/R)^2] \} = 0.12 N, \text{ say } 0.2 N$$

Hence only about 20% of the flights will fall within the 10 mile radius. The number of flights over Sector 40 is conservatively taken as 178. Therefore, the number of flights per day, in the vicinity of the site, is given by

$$N = 0.20 (178) = 36, \text{ say } 40$$

Hence 40×365 or 14,600 flights per year are expected. The low traffic count is a direct result of the relatively light air traffic for Sector 40 (178 flights over a Sector area of 10,000 sq. nautical miles).

The effective target area includes a skid area and a shadow area in addition to the physical area. The proposed facility is not expected to have any tall structures. Thus the shadow area is insignificant. Also the assumed input of 50 acres for the physical area is conservative. Therefore, no provision is given to the skid area (see Assumption 3). The effective target area is thus 50 acres, or $50 \times 4840 \times 9/5280^2$ or 0.078125 sq. miles.

The airway passes about 5 nautical miles from the site center. The width of a federal airway is generally taken as 8 miles (Reference 8). The minimum distance between the edge of the airway and site boundary is conservatively ignored. Hence W is given by

$$W = 8 \text{ miles}$$

Substituting C , N , A and W into Eq.1, one gets

$$P = 2.4 \times 10^{-9} (14600) (0.078125) / 8 = 3.4 \times 10^{-7} < 10^{-6}$$

The maximum number of flights that will satisfy the acceptance criteria can be calculated by setting the yearly probability to 10^{-6} . The result is

$$N_{\max} = 8 (10^{-6}) / 2.4 \times 10^{-9} / 0.078125 = 42,666$$

which corresponds to about 116 flights per day over the vicinity of the site. This is significantly higher than the estimate based on FAA data. Hence the present analysis is expected to bound future increase in air traffic in the Midland sector.

6.0 CONCLUSIONS

An aircraft hazard analysis has been performed for the proposed NEF uranium enrichment plant site, following the methodology of SRP 3.5.1.6 applicable to aircraft hazard assessment for nuclear power plants. Airports and airways in the vicinity of the proposed site (Eunice, New Mexico) have been identified. Based on the published number of operations and distance to the proposed site, it is concluded that the presence of these airports does not pose any risk to site with regard to aircraft hazard. For the identified airways, the probability of aircraft along these airways crashing onto the proposed site has been calculated to be 3.4×10^{-7} per year. Based on this, it is concluded that aircraft crashing onto the proposed site is not a credible event in accordance with 10 CFR Part 70, and need not be considered further in the Integrated Safety Assessment.

The objective of this calculation has been met.

7.0 REFERENCES

1. 10 CFR Part 70, Domestic Licensing of Special Nuclear Material, U.S. Nuclear Regulatory Commission, Washington, DC, September 2000.
2. Standard Review Plan, NUREG-0800, Section 3.5.1.6, Aircraft Hazards, U.S. Nuclear Regulatory Commission, Washington, DC, Office of Nuclear Reactor Regulation, Rev. 2, July 1981.
3. FANP Document 02-5034503B-02, Lockwood Greene Drawing No. C-1, Rev. 01, "Site Plan (Without Contours)" *WSY 10/24/03*
4. *WSY 10/24/03* FAA Publication, Annual Review of Accident Data, PB 2002-106890, NTSB/ARC-02/01. Available from www.nts.gov website.
5. L-4 IFR Enroute Low Altitude Aeronautical Chart, Effective July 10, 2003 to September 4, 2003, published by U.S. Department of Transportation.
6. FOIA Transmittal from Douglas R. Murphy (FAA) to George Harper (FANP), dated 10/9/03 (Attachment A).
7. FAA Form 5010-1, Airport Master Record (Attachment C). Available from www.grcl.com/5010WEB website.
8. 14 CFR Chapter I, Section 71.75, "Extent of Federal Airways".
9. FAA Publication, Annual Review of Accident Data, PB2002-109241, NTSB/ARC-02/03. Available from www.nts.gov website.

8.0 LIST OF ATTACHMENTS

- A. FOIA transmittal from FAA
- B. Reduction of flight data
- C. Airport Master Records (5010 Reports)
- D. NTSB Accident Rate Data
- E. Email regarding geographical location of NEF site

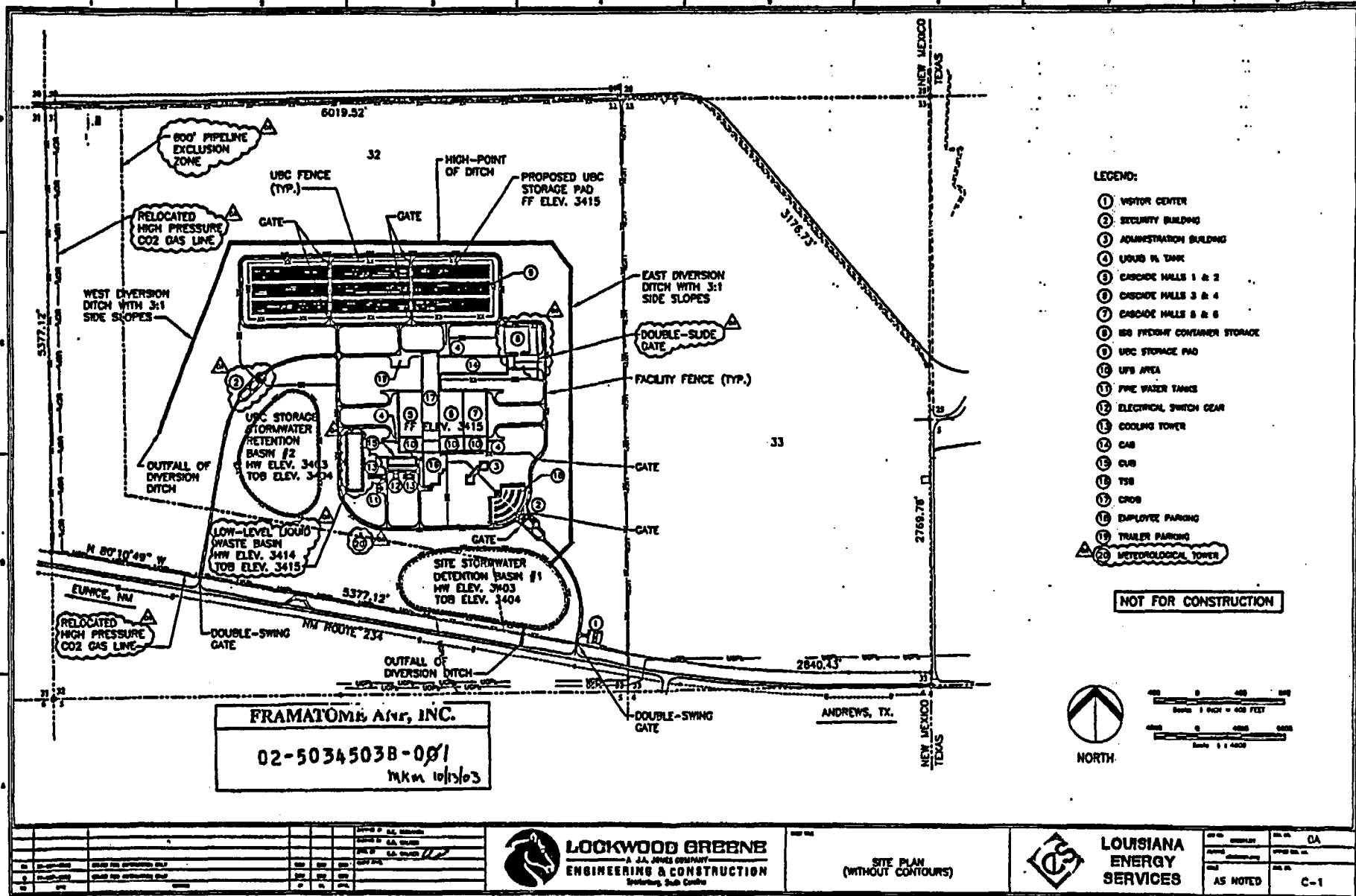


Figure 1: Proposed Site Plan

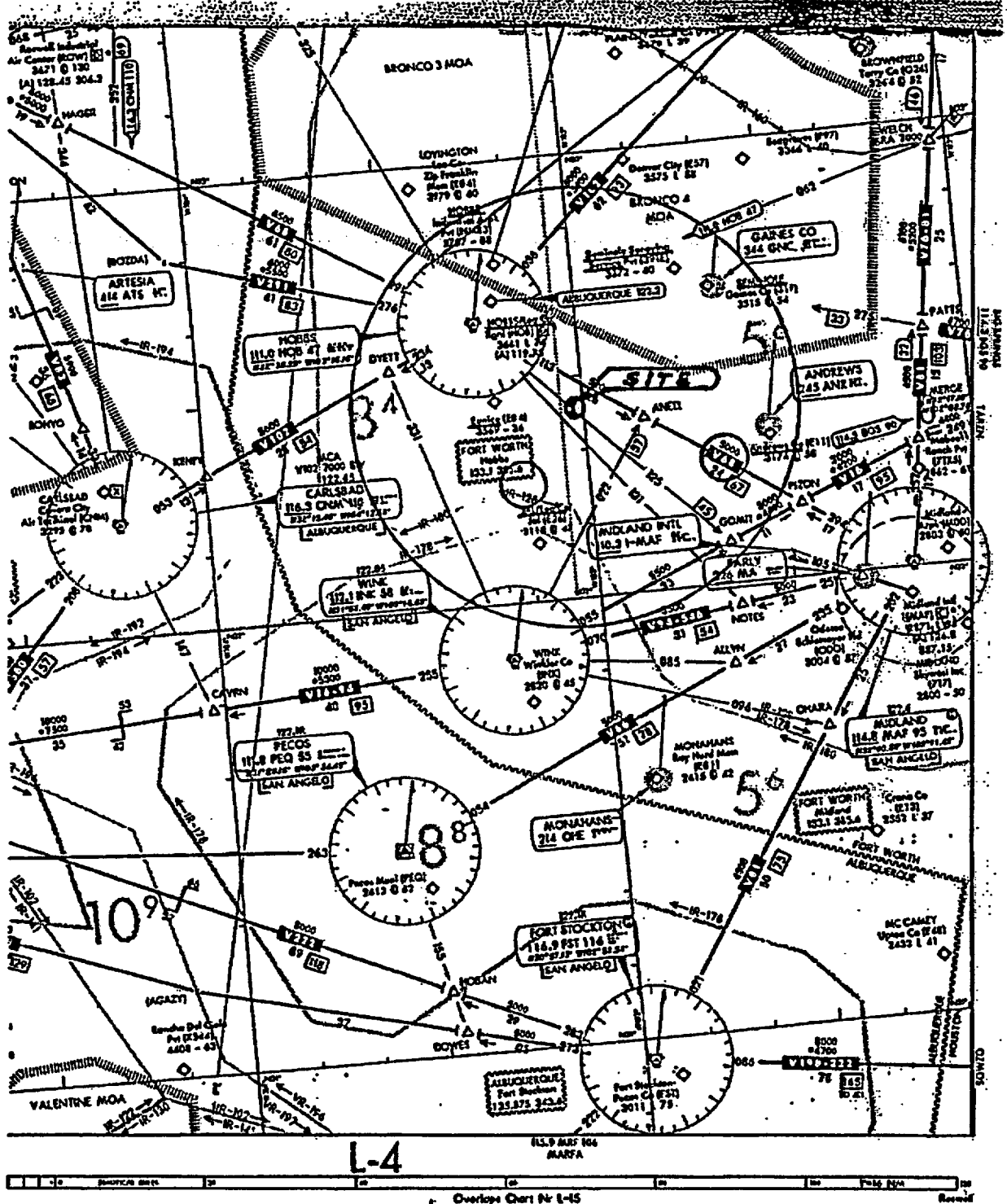


Figure 2: Aeronautical Chart in the vicinity of the proposed site

Attachment A: FOIA Transmittal from FAA in Response to FANP FOIA Request

Attachment A contains the portion of FOIA transmittal from the FAA that was used in this calculation. Specifically, it contains the cover letter from FAA to FANP, a sheet summarizing information on military routes, jet routes and victor airways, and nearby airports, a sheet summarizing the air traffic data for 2002, a sector map, and seven approach charts for Hobbs/Lea County Regional airport.



U.S. Department
of Transportation
Federal Aviation
Administration

Southwest Region
Arkansas, Louisiana,
New Mexico, Oklahoma,
Texas

Fort Worth, Texas 76193-0000

OCT 09 2003

FEDERAL EXPRESS

Mr. George A. Harper, P.E.
Framatome ANP, Inc.
Solomon Pond Park
400 Donald Lynch Boulevard
Marlborough, MA 01752

Dear Mr. Harper:

This is in further response to your Freedom of Information Act (FOIA) request dated August 15, 2003, asking for copies of the following:

a. Information regarding the approximate number of flights passing through V68 either per day or per year, in the vicinity of the Eunice site near Eunice, New Mexico, for 2002 and 2003.

b. Information regarding whether there exists military routes, military operations areas, or any special use airspace that may overlie the proposed Eunice site.

c. Holding patterns in nearby airports within 20 to 30 nautical miles of the proposed Eunice site.

We are enclosing 22 pages of continuous-print computer output data, a 3.5-inch disk containing computer data, 13 approach charts, 2 pages of printed data, and a sectional aeronautical chart from Fort Worth Air Route Traffic Control Center.

Thank you for your check in the amount of \$2,750.

Should you have any questions concerning this matter, you may call Ms. Avanelle Dawson, Air Traffic Division FOIA Coordinator, at 817-222-5566, and refer to Document Request Number 2003-008045SW.

Sincerely,

Douglas R. Murphy
Manager, Air Traffic Division

5 Enclosures

FOIA REQUEST
2003-008045SW

Existing military routes:

IR 128 is located within 8 miles
 IR 180 " " " 8 miles
 IR 178 " " " 12 miles

Jet Routes and Victor Airways (Measurements are closest proximity to the centerline of the route and do not take into account airspace to be protected):

J4	centerline is	within	30 miles
J15	"	"	28 miles
J50	"	"	30 miles
J66	"	"	28 miles
J68	"	"	38 miles
J108	"	"	35 miles
V16	"	"	26 miles
V68	"	"	directly over the proposed site
V94	"	"	within 31 miles
V102	"	"	18 miles
V291	"	"	18 miles
V546	"	"	31 miles

MOAs:

BRONCO 3 is within 25 miles
 BRONCO 4 " " 10 miles

Midland TRACON's airspace is within 17 miles

Airports with approaches/holding patterns potentially affected:

Hobbs/Lea County, Hobbs, NM (HOB) (7 Approach Charts Included)
 Andrews County, Andrews, Texas (E11) (2 Approach Charts Included)
 Gaines County, Seminole, Texas (31F) (2 Approach Charts Included)
 Lovington/Lea County-Zip Franklin Memorial, Lovington, NM (E06) (2 Approach Charts Included)
 Denver City, Texas (E57) (no approaches)
 Eunice, NM (E04) (no approaches)
 Lea County, Jal, NM (E26) (no approaches)
 Midland International, Midland, Texas (MAF) (Outside 20 miles)
 Odessa-Schlemeyer Field, Odessa, Texas (ODO) (Outside 20 miles)
 Winkler County, Wink, Texas (INK) (Outside 20 miles)

Sector:	Average Day:	Busy Day:	Peak Day:	Average Workload:	100% Problem:	95% Problem:	90% Problem:	85% Problem:	80% Problem:	75% Problem:	70% Problem:
23/53	219	234	285	30.75	33	31	30	28	26	25	23
25	168	164	118	18.86667	25	24	23	21	20	19	18
29	221	237	216	28.08333	28	27	25	24	22	21	20
24/37	316	362	307	41.04167	41	39	37	35	33	31	29
38	178	178	235	24.625	25	24	23	21	20	19	18
35	136	152	141	17.875	25	24	23	21	20	19	18
38	154	175	322	27.125	27	26	24	23	22	20	19
27	117	109	156	15.91667	25	24	23	21	20	19	18
28/83	353	371	337	44.20833	44	42	40	37	35	33	31
40	134	178	46	14.91667	25	24	23	21	20	19	18
20/32	319	309	272	37.5	37	35	33	31	30	28	26
62/97	251	280	224	31.45833	31	29	28	26	25	23	22
43/64	149	170	179	20.75	25	24	23	21	20	19	18
75/98	293	293	285	35.45833	35	33	32	30	28	26	25

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Figure A-2: Approach Chart for Hobbs/Lea County Airport (1 of 7)

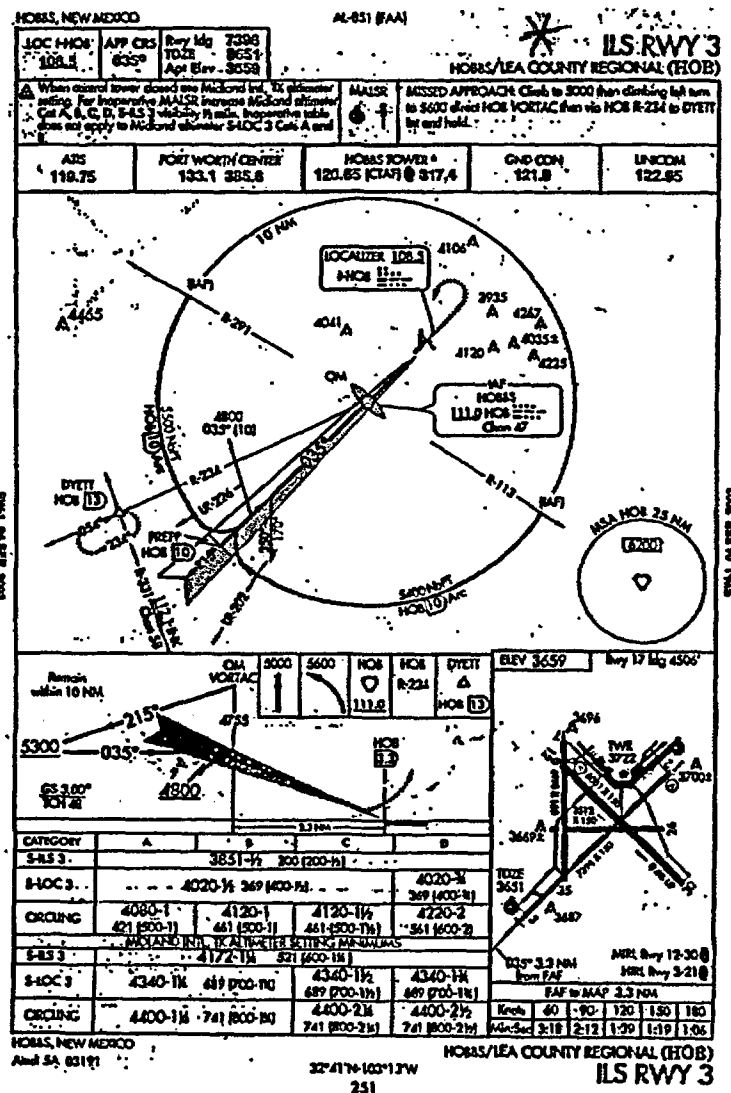


Figure A-3: Approach Chart for Hobbs/Lea County Airport (2 of 7)

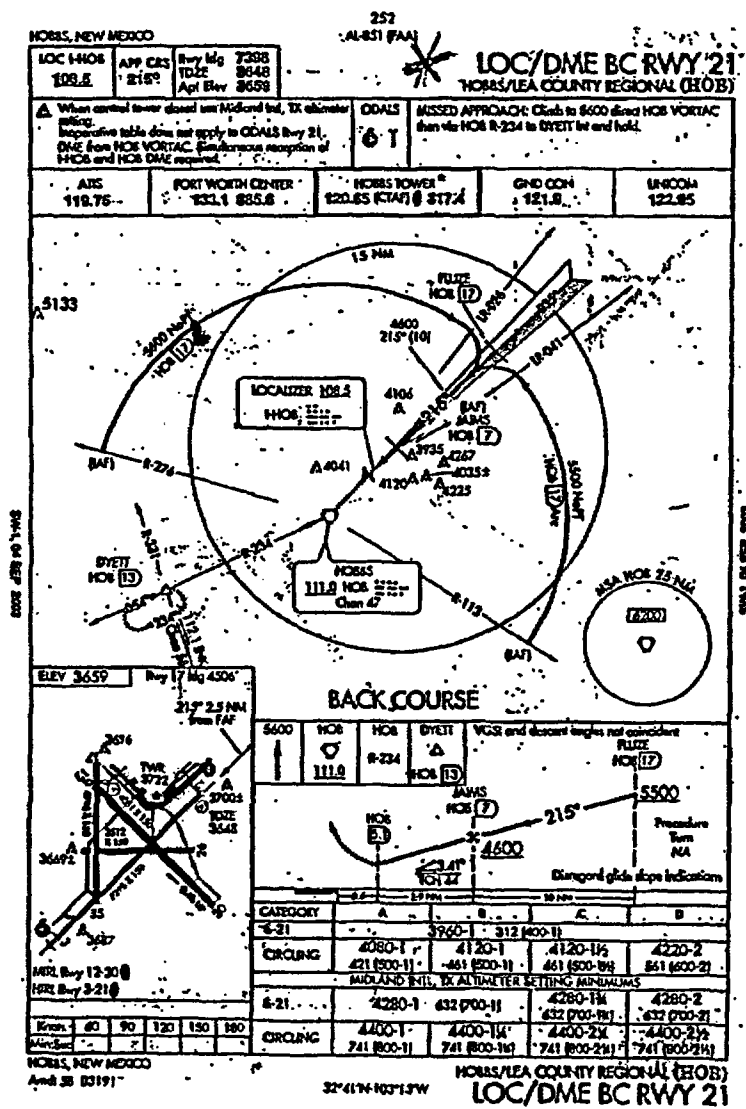


Figure A-4: Approach Chart for Hobbs/Lea County Airport (3 of 7)

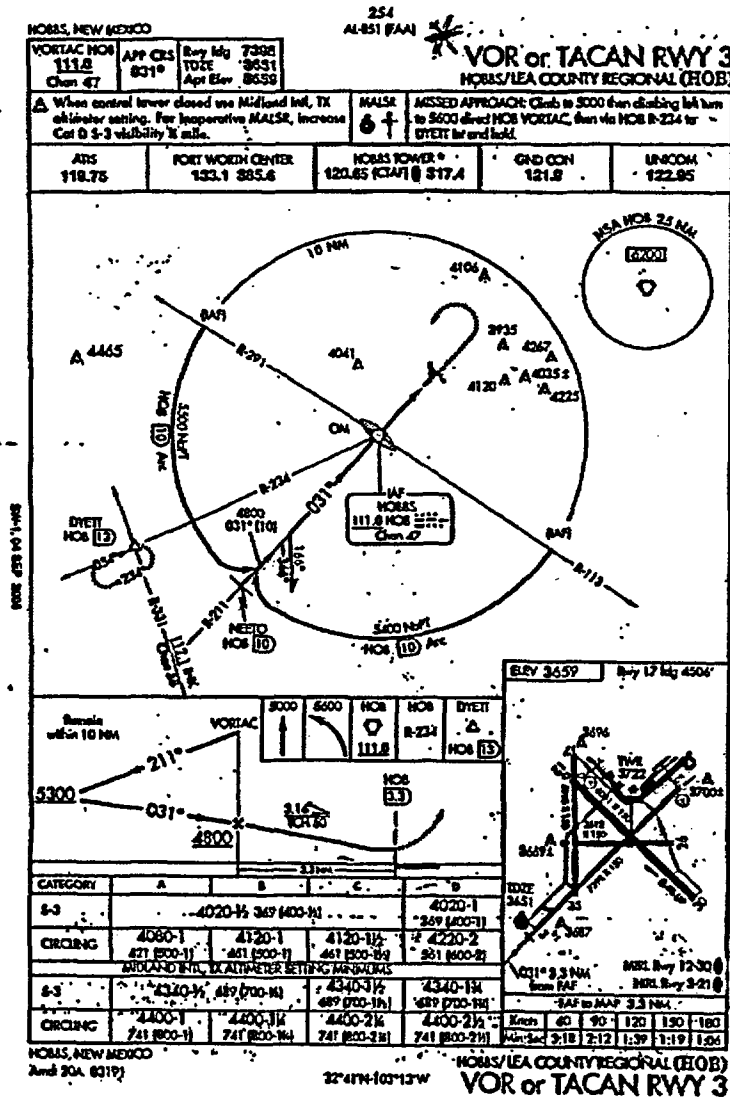


Figure A-5: Approach Chart for Hobbs/Lea County Airport (4 of 7)

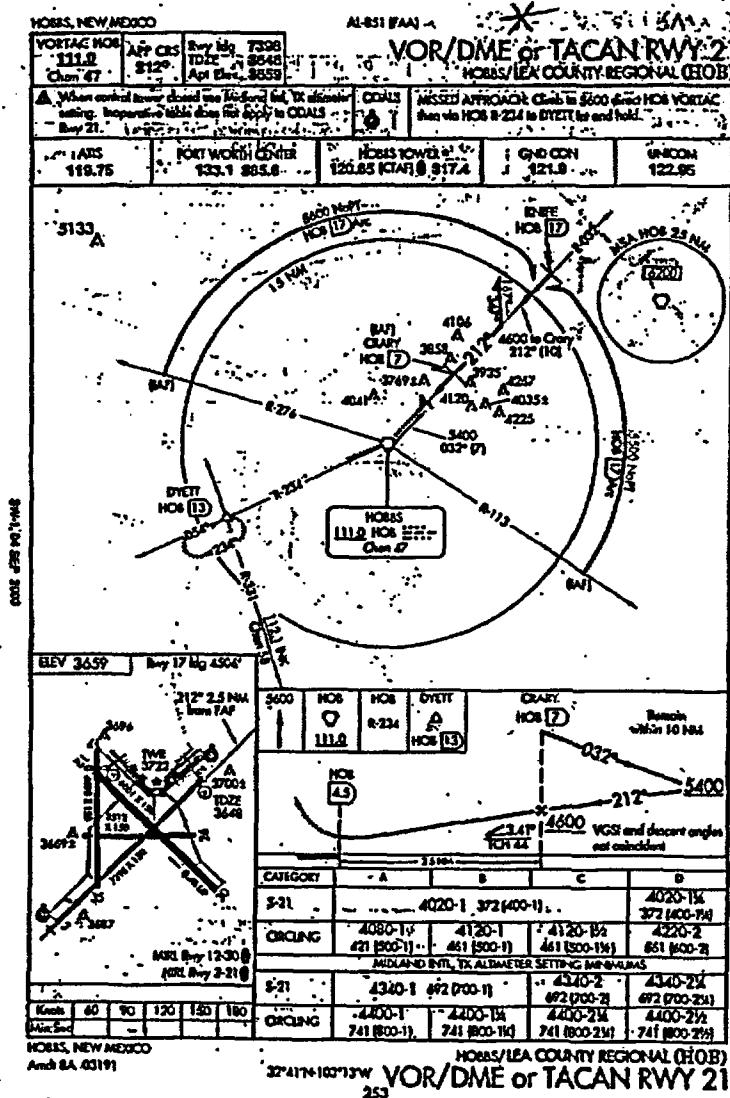


Figure A-6: Approach Chart for Hobbs/Lea County Airport (5 of 7)

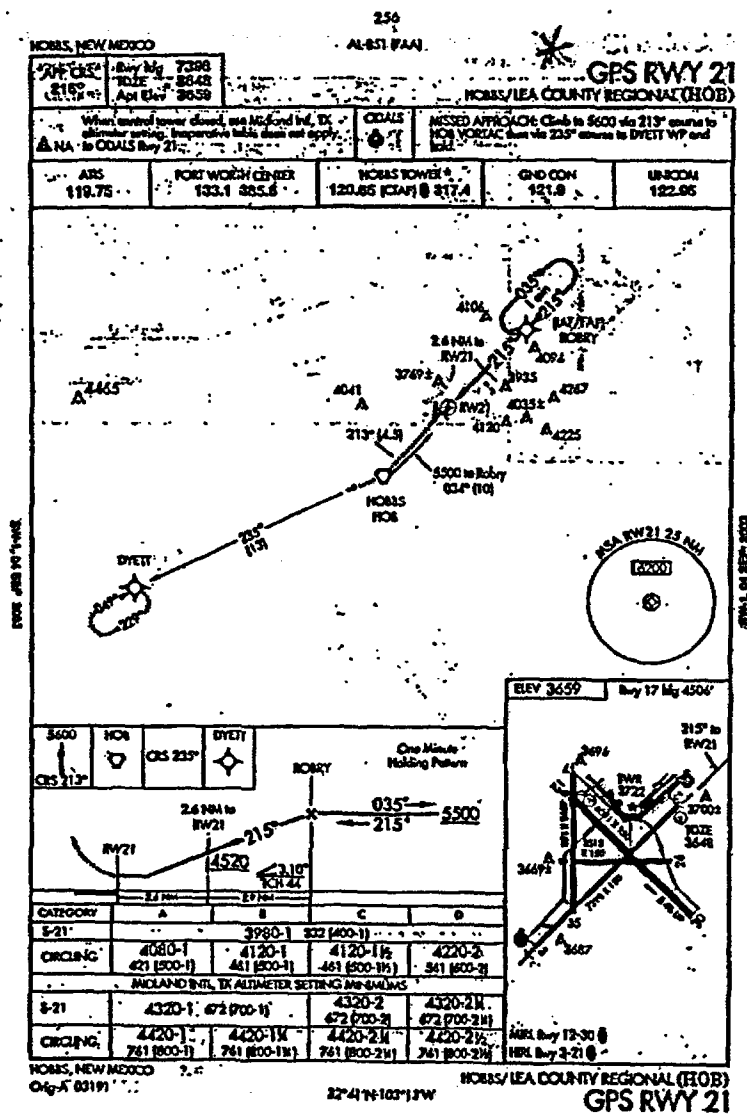


Figure A-7: Approach Chart for Hobbs/Lea County Airport (6 of 7)

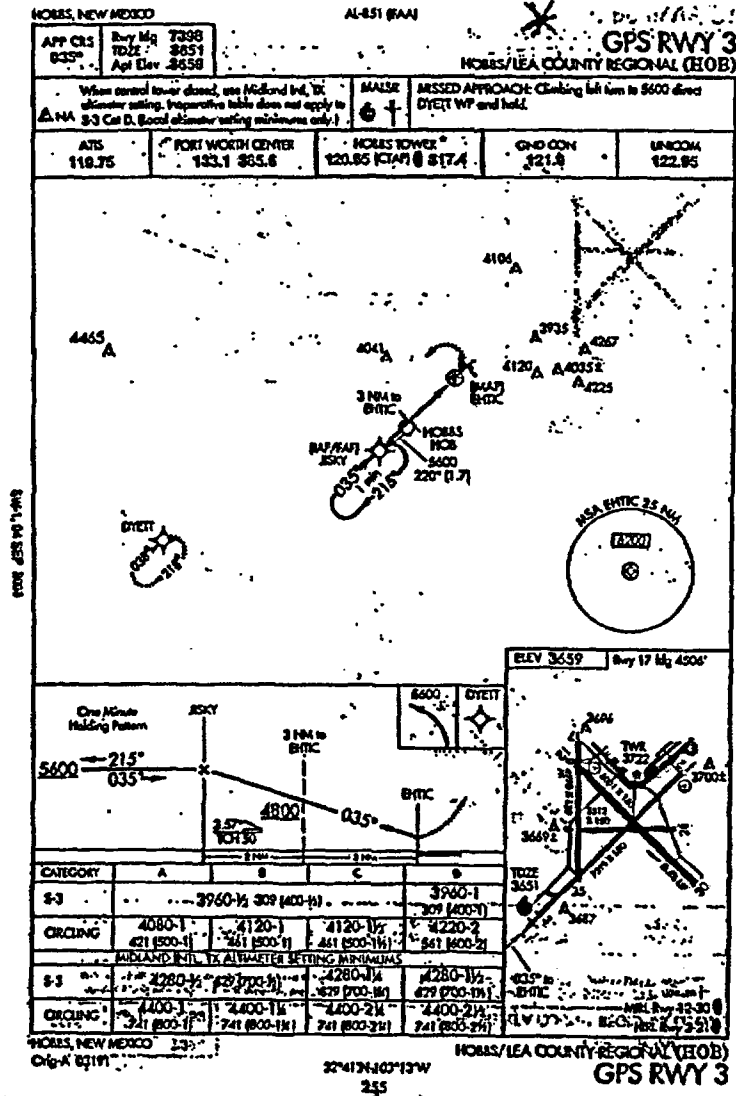
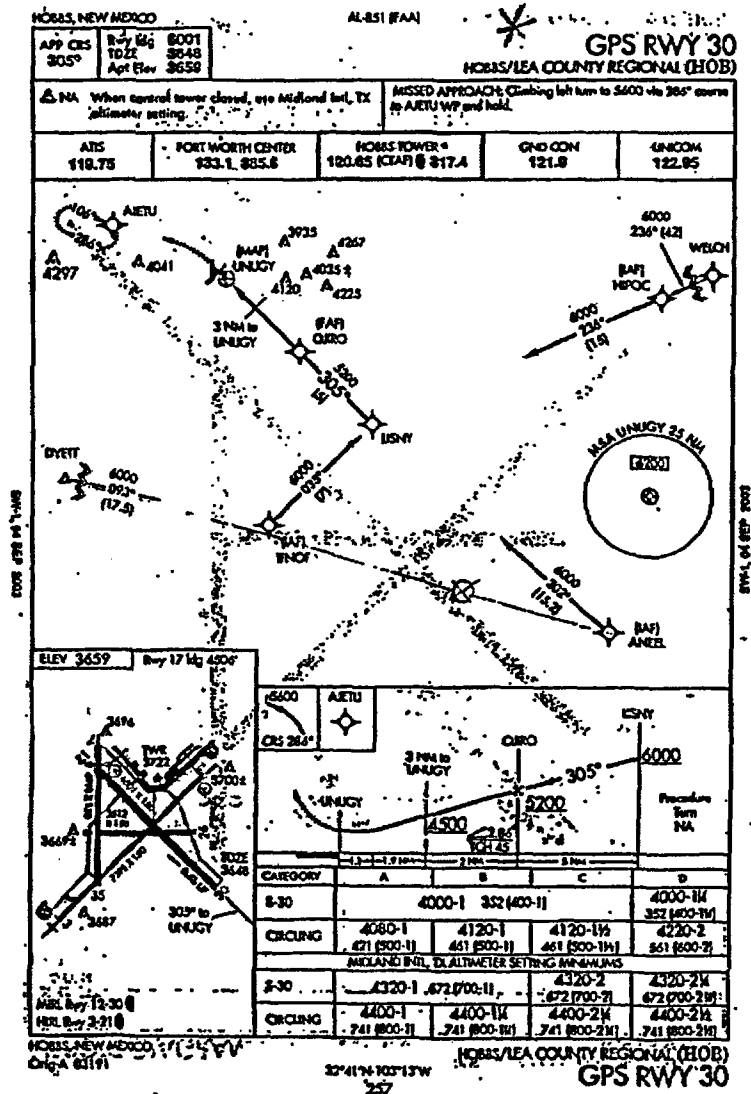


Figure A-8: Approach Chart for Hobbs/Lea County Airport (7 of 7)



Attachment B: Reduction of Flight Data

Refer to Figure B-1. The Sector area is represented by the area with radius R , and the area of concern is denoted by that with radius r_i . Consider a concentric strip of width dr , and at a distance r ($r > r_i$) from the center. The probability of an aircraft crossing this strip and has a path that intersects with the area of concern is simply

$$dP = 2\theta/2\pi = \theta/\pi \quad (B.1)$$

where θ is half the angle subtended by the tangent from r to the area of concern (see Figure B-1). The number of flights in the circular strip is given by

$$dN = (N_i/\pi R^2) 2\pi r dr \quad (B.2)$$

Hence the number of flights that intersects the area of concern is

$$dN_a = dN \times dP = (N_i/\pi R^2) 2\theta r dr \quad (B.3)$$

The relationship between r and θ is found as follows. From Figure B-1,

$$r = r_i/\sin\theta \quad (B.4)$$

and hence

$$dr = -r_i \cos\theta / \sin^2\theta d\theta \quad (B.5)$$

Substitute (B.4) and (B.5) into (B.3) and get

$$dN_a = -(N_i r_i^2/\pi R^2) 2\theta \cos\theta d\theta / \sin^3\theta \quad (B.6)$$

The total number of flights from outside the area of concern that will intersect the area of concern can be obtained by integrating Eq.(B.6) from $r=r_i$ to $r=R$, which correspond to $\theta=\pi/2$ to $\theta=\sin^{-1}(r_i/R)$. Thus

$$N_a = -\frac{2N_i r_i^2}{\pi R^2} \int_{\pi/2}^{\sin^{-1}(r_i/R)} \frac{\theta \cos\theta}{\sin^3\theta} d\theta \quad (B.7)$$

The definite integral in Eq.(B.7) has been determined numerically in Table B-1, using Trapezoidal Rule for the case where $r_i/R = 10/64 = 0.156$. Hence the upper limit is $\sin^{-1}(0.156)$ or 0.1568929 radian. The result is -5.7 (negative denotes $d\theta$ is decreasing), say -6.0. Hence Eq. (B.7) becomes

$$N_a = 12.0(r_i^2/R^2)/\pi N_i \quad (B.8)$$

Multiply both side of (B.8) by the factor $(1 - r_i^2/R^2)$, one finally obtains the fraction of flights outside the area of concern that will intersect the area of concern as

$$N_o/N_i(1 - r_i^2/R^2) = 12.0(r_i^2/R^2)/[\pi(1 - r_i^2/R^2)] = 0.096, \text{ say } \underline{0.1}$$

Table B-1 : Trapezoidal Rule evaluation of integral in Eq. (B.7)

θ	$\theta \cos \theta / \sin \theta^3$	-Area ^a
1.570796	5.13328E-07	0
1.500101	0.106760089	0.003774
1.429406	0.207584573	0.014885
1.35871	0.306127524	0.033044
1.288015	0.405853923	0.05821
1.21732	0.51030697	0.090594
1.146625	0.623393092	0.130668
1.07593	0.749727683	0.179205
1.005235	0.895100479	0.237345
0.934539	1.067152943	0.306706
0.863844	1.276424871	0.389546
0.793149	1.538054488	0.489031
0.722454	1.874674679	0.609663
0.651759	2.321601552	0.757991
0.581064	2.936676011	0.943858
0.510368	3.820243363	1.182699
0.439673	5.15925817	1.500103
0.368978	7.335640117	1.941767
0.298283	11.23330265	2.598135
0.227588	19.30293671	3.677517
0.156893	40.62353454	<u>5.795773</u>

^a Area is calculated by the trapezoidal rule based on the current and previous functional value, and a step of $d\theta = (1.570796 - 0.156893)/20 = 0.070695$ radian. For instance, the second entry in the area column is obtained from $0 + (5.13328e-7 + 0.106760089)(0.070695)/2 = 0.003774$.

Note that the site is not centrally located within Sector 40 (see Figure A-1). However, the method proposed here is expected to yield a conservative estimate of the fraction of flight that will fall within the vicinity of the site. This is because the geometry in Figure B-1 maximizes the probability of any flight outside the region to interest passing over the region of interest.

Equivalent Sector Area

Figure A-1 in Attachment A shows the boundaries for Sector MAF-L 40. The area approximately consists of two triangles, as shown. The scale of the figure can be obtained from the distance between HOB and MAF shown in Figure A-1. The actual distance is 68 nm (can be inferred from Figure 2). Based on this, the dimensions of the triangles were obtained as: 85 by 182 nm, and 76 by 76 nm. Thus the total sector area is about (the answer is rounded down for conservatism)

$$A_{\text{sector}} = 0.5(85 \times 182) + 0.5(76 \times 76) = 10623, \text{ say } 10000 \text{ sq. nm.}$$

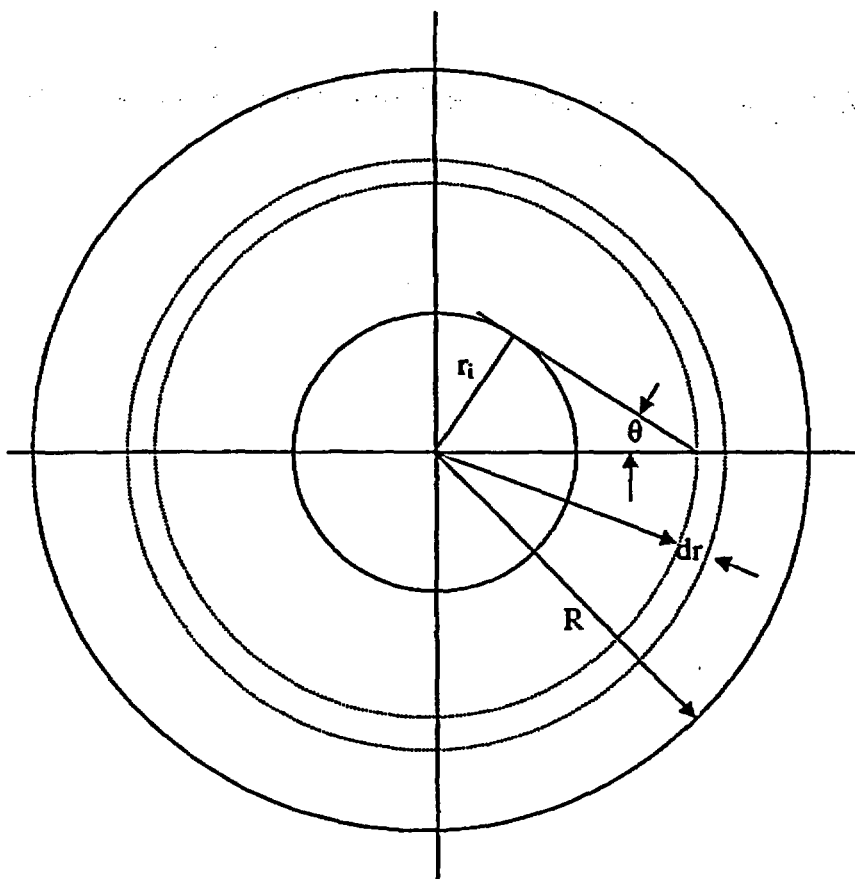


Figure B-1: Geometrical notations used in the fraction of flights analysis

Attachment C: Airport Master Records

This attachment reproduces the Airport Master Records for those airports listed in Table 1.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 08/14/2003 AFD 877 8710/2003 Form Approved OMB 3120-0015	
1 ASSOC CITY: ELNICE		4 STATE: NM		LOG ID: E04	
2 AIRPORT NAME: ELNICE		5 COUNTY: LEA NM		FAA SITE NR: 14605.1A	
3 CDB TO AIRPORT (S): 84 W		8 REGION/ADO: ASWNONE		7 SECT AERO CHT: ALBUQUERQUE	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PUBLIC		70 FUEL:		80 SINGLE ENG: 0	
11 OWNER: NM STATE HWY 8		71 AIRFRAME RPRS:		81 MULTI ENG: 0	
12 ADDRESS: PO BOX 1148		72 PWR PLANT RPRS:		82 JET: 0	
13 PHONE NR: 505-476-0930		73 BOTTLE OXYGEN:		TOTAL: 0	
14 MANAGER: TERRY SIMCOE		74 BULK OXYGEN:		83 HELICOPTERS: 0	
15 ADDRESS: PO BOX 1148		75 TENT STORAGE: TIC		84 GLIDERS: 0	
16 PHONE NR: 505-476-0941		76 OTHER SERVICES:		85 MILITARY: 0	
17 ATTENDANCE SCHEDULE:				86 ULTRA-LIGHT: 0	
MONTHS DAYS HOURS					
UNATHD					
18 AIRPORT USE: PUBLIC		FACILITIES		OPERATIONS	
19 ARPT LAT: 32-27-24.449N ESTIMATED		80 ARPT BGN: CG		100 AIR CARRIER: 0	
20 ARPT LONG: 103-14-25.885W		81 ARPT LGT SKED: DUSK-DAWN		101 COMMUTER: 0	
21 ARPT ELEV: 3549 ESTIMATED		82 UNCOL:		102 AIR TAXI: 0	
22 ACREAGE: 80		83 WIND INDICATOR: YES		103 G A LOCAL: 240	
23 RIGHT TRAFFIC: NO		84 SEGMENTED CIRCLE: YES		104 G A (INFRONT): 240	
24 NON-COMM LANDING: NO		85 CONTROL TWR: NONE		105 MILITARY: 0	
25 PIAS/PED AGREEMENTS: N		86 FSS: ALBUQUERQUE		TOTAL: 480	
26 FAR 135 INDEX:		87 FSS ON ARPT: NO		OPERATIONS FOR	
RUNWAY DATA		88 FSS PHONE NR: 505-243-7831		MOS ENDING	
29 RUNWAY IDENT:		89 TOLL FREE NR: 1-800-WX-BRIEF			
30 LENGTH:					
31 WIDTH:					
32 SURF TYPE-COND:					
33 SURF TREATMENT:					
34 GROSS WT: SW					
35 (N THDS): DW					
36 CTW					
37 DOW					
38 DOW					
LIGHTING/APCH AID					
40 EDGE INTENSITY:					
41 RWY MARK TYPE-COND:					
42 VCS:					
43 THR CROSSING HGT:					
44 VISUAL GLIDE ANGLE:					
45 CNTRLN-TOZ:					
46 RWY-RV:					
47 REL:					
48 APCH LIGHTS:					
CONSTRUCTION DATA					
50 FAR 77 CATEGORY:					
51 DISPLACED THR:					
52 CTG OBSTN:					
53 OBSTN MARKED LGTD:					
54 HGT ABOVE RWY END:					
55 DIST FROM RWY END:					
56 CNTRLN OFFSET:					
57 OBSTN CLNG SLOPE:					
58 CLOSE-IN OBSTN:					
DECLARED DISTANCES					
60 TAKE OFF RUN AVBL (TORA):					
61 TAKE OFF DIST AVBL (TODA):					
62 ACFT STOP DIST AVBL (ASDA):					
63 LNDG DIST AVBL (LDA):					
(P) ARPT MGR PLEASE ADVISE FAS IN ITEM 66 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY >					
110 REMARKS:					
A 011 AVIATION DIVISION.					
A 040 RWY 18/36 EDGE LGTG RETRO-REFLECTIVE.					
A 042 RWY 18 NSTD COALS - 3 NSTD LGTS ON EXTDO RY CNTRLN ON LESS THAN STD SPACING.					
A 043 RWY 36 NSTD COALS - 1 FLASHING LGT ON CNTRLN, 2 AT RY THLD.					
A 110-01 EXTENSIVE OIL WELL DRILLING ACTIVITY IN/OF ARPT.					
A 110-02 ARPT GATE ALWAYS LOCKED; COMBINATION SET TO FIELD ELEVATION.					

111 INSPECTOR: (8)
FAA Form 5010-1 (5-81) SUPERCEDES PREVIOUS

112 LAST INSP: 04/02/2002

113 LAST INFO REC:

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 05/14/2003 AFD EFF: 07/19/2003 Form Approved OMB 2120-0015	
1 ASSOC CITY: JAL		4 STATE: NM		LOC ID: E28	
2 AIRPORT NAME: LEA COUNTY/JAL		5 COUNTY: LEA NM		FAA SITE NR: 14632.1A	
3 CDD TO AIRPORT (NM): 83 NE		6 REGIONADO: ASWNONE		7 SECT AERO CMT: ALBUQUERQUE	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PUBLIC		70 FUEL:		80 SINGLE ENG: 8	
11 OWNER: LEA COUNTY		71 AIRFRAME RPRS: NONE		81 MULTI ENG: 0	
12 ADDRESS: PO BOX 1106		72 PWR PLANT RPRS: NONE		82 JET: 0	
13 PHONE NR: 505-393-4943		73 BOTTLE OXYGEN: NONE		TOTAL: 8	
14 MANAGER: BILL GATCHELL		74 BULK OXYGEN: NONE		80 HELICOPTERS: 0	
15 ADDRESS: PO BOX 1106		75 TENT STORAGE: TIE		84 GLIDERS: 0	
16 PHONE NR: 505-393-4943		76 OTHER SERVICES:		85 MILITARY: 0	
17 ATTENDANCE SCHEDULE:				86 ULTRA-LIGHT: 0	
MONTHS DAYS HOURS		FACILITIES		OPERATIONS	
UNATND		80 ARPT BCH: CG		100 AIR CARRIER: 0	
		81 ARPT LST SHED: DUSK-DAWN		101 COMMUTER: 0	
		82 UNICOM:		102 AIR TAXI: 0	
		83 WIND INDICATOR: YES-L		103 G A LOCAL: 1,000	
		84 SEGMENTED CIRCLE: YES		104 G A ITNRNT: 3,200	
		85 CONTROL TWR: NONE		105 MILITARY: 0	
		86 FSS: ALBUQUERQUE		TOTAL: 4,200	
		87 FSS ON ARPT: NO		OPERATIONS FOR	
		88 FSS PHONE NR: 505-243-7831		MOS ENDING	
		89 TOLL FREE NR: 1-800-WX-BRIEF			
18 AIRPORT USE: PUBLIC					
19 ARPT LAT: 32-07-41.832N ESTIMATED					
20 ARPT LONG: 103-09-17.482W					
21 ARPT ELEV: 3118 SURVEYED					
22 ACRESAGE: 320					
23 RIGHT TRAFFIC: NO					
24 NON-COMM LANDING: NO					
25 NPASSED AGREEMENTS: NGV					
26 FAR 139 INDEX:					
RUNWAY DATA					
30 RUNWAY IDENT:		09/19 09/27			
31 LENGTH:		4,700 2,595			
32 WIDTH:		80 80			
33 SURF TYPE-COND:		ASPH-G ASPH-F			
34 SURF TREATMENT:					
35 GROSS WT: SW		23 12			
36 (N THSDS) OW					
37 OTW					
38 COTW					
LIGHTING/APCH AIDS					
40 EDGE INTENSITY:		MED			
42 RWY MARK TYPE-COND:		BSC-G / BSC-G BSC-G / BSC-G			
43 VGS:		/ /			
44 THR CROSSING HGT:		/ /			
45 VISUAL GLIDE ANGLE:		/ /			
46 CNTRLN-TDZ:		- / - - / -			
47 RWY-RVY:		- / - - / -			
48 REL:		/ /			
49 APCH LIGHTS:		/ /			
OBSTRUCTION DATA					
50 FAR 77 CATEGORY:		B(V) / B(V) A(V) / A(V)			
51 DISPLACED THR:		/ /			
52 CTLG OBSTN:		PLINE / ROAD / PLINE			
53 OBSTN MARKED/LTD:		/ /			
54 HGT ABOVE RWY END:		30 / 18 15 / 30			
55 DIST FROM RWY END:		825 / 395 160 / 800			
56 CNTRLN OFFSET:		88 / 0R 05 / 00			
57 OBSTN CLNC SLOPE:		20:1 / 6:1 10:1 / 22:1			
58 CLOSE-IN OBSTN:		N / N Y / Y			
DECLARED DISTANCES					
60 TAKE OFF RUN AVBL (TORA):		/ /			
61 TAKE OFF DIST AVBL (TODA):		/ /			
62 ACFT STOP DIST AVBL (ASDA):		/ /			
63 UNOC DIST AVBL (LDA):		/ /			
(P) ARPT MGR PLEASE ADVISE FAS IN ITEM 86 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY *					
110 REMARKS:					
A 014 LEA COUNTY/ARPT MGR ALSO.					
A 033 RWY 09/27 CRACKING AND RAVELING.					
A 052 RWY 18 PUMP JACK.					
A 057 RWY 08 APCH SLOPE 10:1 TO DISPLCD THR FM +15 FT ROAD 160 FT.					
A 057 RWY 27 APCH SLOPE 28:1 TO DISPLCD THR FM +4 FT FENCE 115 FT.					
A 058 RWY 09 +3 FT EMBANKMENT; +8 FT FENCE & ROAD 80 FT FM END; 20:1 TO DISPLCD THLD.					
A 058 RWY 27 +4 FT FENCE AT END.					
A 061 MFL RY 09/19 PRESET LOW INTST; TO INCR INTST ACTVT - CTAF.					
A 110-01 5 FT LINE OF SIGHT NOT AVBL BETWEEN RY 09/19 ENDS.					
111 INSPECTOR: (8)		112 LAST INSP: 04/02/2002		113 LAST INFO REQ: 10/25/1982	
FAA Form 5010-1 (5-01)		SUPERSEDES PREVIOUS			

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 05/10/2003 AFD EFF: 07/10/2003 Form Approved OMB 2120-0015	
1 ASSOC CITY: ANDREWS		4 STATE: TX		LOC ID: E11	
2 AIRPORT NAME: ANDREWS COUNTY		6 REGION: ASWANE		8 COUNTY: ANDREWS TX	
3 CSD TO AIRPORT (NM): 01 NE		7 SECT AERO CHT: ALBUQUERQUE		FAA SITE NR: 23336-A	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PUBLIC		70 FUEL: 100LL A		80 SINGLE ENG: 10	
11 OWNER: ANDREWS COUNTY		71 AIRFRAME RPRS:		81 MULTI ENG: 1	
12 ADDRESS: ANDREWS CO COURTHOUSE		72 PWR PLANT RPRS:		82 JET: 0	
13 PHONE NR: 432-824-1401		73 BOTTLE OXYGEN:		TOTAL: 11	
14 MANAGER: BOBBY HULAN		74 BULK OXYGEN: NONE		83 HELICOPTERS: 0	
15 ADDRESS: COUNTY AIRPORT		75 TANT STORAGE: HGR TIE		84 GLIDERS: 0	
16 PHONE NR: 432-824-1447		76 OTHER SERVICES:		85 MILITARY: 0	
17 ATTENDANCE SCHEDULE:				86 ULTRA-LIGHT: 1	
MONTHS DAYS HOURS		FACILITIES		OPERATIONS	
ALL MON-FRI 0800-1700		80 ARPT ECH: CG		100 AIR CARRIER: 0	
		81 ARPT LGT SKED: DUSK-DAWN		101 COMMUTER: 0	
		82 UNICOM: 122.800		102 AIR TAXI: 0	
		83 WIND INDICATOR: YES-L		103 G A LOCAL: 4,000	
		84 SEGMENTED CIRCLE: YES		104 G A THERNT: 2,000	
		85 CONTROL TWR: NONE		105 MILITARY: 0	
		86 FSS: SAN ANGELO		TOTAL: 6,000	
		87 FSS ON ARPT: NO		OPERATIONS FOR	
		88 FSS PHONE NR: 915-223-6000		MOS ENDING	
		89 TOLL FREE NR: 1-800-WX-BRIEF			
18 AIRPORT USE: PUBLIC					
19 ARPT LAT: 32-19-52.00N ESTIMATED					
20 ARPT LONG: 102-51-48.30W					
21 ARPT ELEV: 3174 SURVEYED					
22 ACREAGE: 260					
23 RIGHT TRAFFIC: 02, 28, 34					
24 NON-COMM LANDING: NO					
25 NPAS/FED AGREEMENTS: NGV					
26 FAR 135 INDEX:					
RUNWAY DATA					
30 RUNWAY IDENT:		02/20		11/29	
31 LENGTH:		2,939		3,848	
32 WIDTH:		75		75	
33 SURF TYPE-COND:		ASPH-G		ASPH-G	
34 SURF TREATMENT:					
35 GROSS WT: SW		23		17	
36 (N THSSES) GW					
37 GTW					
38 DOTW					
LIGHTING/APCH AIDS					
40 EDGE INTENSITY:		MED		MED	
42 RWY MARK TYPE-COND		BSC-G / BSC-G		BSC-G / BSC-G	
43 VCS:		/ P2L		/ P2L	
44 THR CROSSING HGT		/ 36		/ 36	
45 VISUAL GLIDE ANGLE		/ 3.00		/ 3.00	
46 CNTRLN-TDZ		- / -		- / -	
47 RVR-RV		- / -		- / -	
48 REL		- / -		- / -	
49 APCH LIGHTS		/		/	
OBSTRUCTION DATA					
50 FAR 77 CATEGORY		A(V) / A(V)		A(V) / A(V)	
51 DISPLACED THR		/		/	
52 CTLG OBSTN		TREES / GND		TREES / ROAD	
53 OBSTN MARKED LGTD		/		/	
54 HGT ABOVE RWY END		35 / 6		67 / 10	
55 DIST FROM RWY END		1,500 / 400		1,000 / 505	
56 CNTRLN OFFSET		140L / 125R		125L / 180R	
57 OBSTN CLNC SLOPE		36:1 / 33:1		14:1 / 9:1	
58 CLOSE-IN OBSTN		N / N		N / N	
DECLARED DISTANCES					
60 TAKE OFF RUN AVBL (TORA)		/		/	
61 TAKE OFF DIST AVBL (TODA)		/		/	
62 ACFT STOP DIST AVBL (ASDA)		/		/	
63 LNDG DIST AVBL (LDA)		/		/	
P1 ARPT MGR PLEASE ADVISE FSS IN ITEM 84 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY P					
TWO REMARKS:					
A 031 RWY 0220 HAS 940 FT BY 75 FT STOPWAY/TWY SW END.					
A 031 RWY 1634 HAS 865 FT BY 80 FT STOPWAY/TWY E END.					
A 052 RWY 11 +14 FT LIGHT POLE 70 FT NE: +28 FT HGR 220 FT E: +20 FT TREE 250 FT E; +54 FT TREES 800 FT W.					
A 053 RWY 16 +4 FT RISING GND 150-200 FT FM THLD 217 FT LEFT.					
A 053 RWY 34 +6-10 FT BRUSH 0-200 FT FM THLD 180-250 FT RIGHT.					
A 081 ACTVT MRL RYS 0220 & 1634 - CTAF. VASI RYS 16 & 34, PAPI RY 30 & REL RY 34 OPER CONT.					
A 110 THIS AIRPORT HAS BEEN SURVEYED BY THE NATIONAL GEODEIC SURVEY.					

111 INSPECTOR: (E)
FAA Form 5010-1 (5-91)

SUPERSEDES PREVIOUS

112 LAST RSP: 02/13/2003

113 LAST INFO REQ:

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 08/14/2003 APD EFF: 07/18/2003 Form Approved OMB 0120-0015	
1 ASSOC CITY: SEMINOLE		4 STATE: TX		LOC ID: 31F	
2 AIRPORT NAME: GAINES COUNTY		6 COUNTY: GAINES TX		FAA SITE NRC: 24767.1A	
3 CDD TO AIRPORT (NM): 03.8		8 REGION/ADO: ASW/NONE		7 SECT AERO CMT: ALBUQUERQUE	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PUBLIC		70 FUEL: 100LL A		90 SINGLE ENG: 21	
11 OWNER: GAINES COUNTY		71 AIRFRAME RPRS: MAJOR		91 MULTI ENG: 2	
12 ADDRESS: GAINES COUNTY COURTHOUSE		72 PWR PLANT RPRS: MAJOR		92 JET: 2	
13 PHONE NR: 915-753-5411		73 BOTTLE OXYGEN: HIGH		TOTAL: 25	
14 MANAGER: LEX HINDS		74 BULK OXYGEN: HIGH		93 HELICOPTERS: 1	
15 ADDRESS: BOX 1826		75 TENT STORAGE: MCR TIE		94 GLIDERS: 0	
16 PHONE NR: 915-753-6435		76 OTHER SERVICES: CHTR INSTR		95 MILITARY: 0	
17 ATTENDANCE SCHEDULE:		FACILITIES		OPERATIONS	
MONTHS DAYS HOURS		80 ARPT BGN: CG		100 AIR CARRIER: 0	
ALL MON-SAT 0830-1800		81 ARPT LGT SKED: DUSK-DAWN		101 COMMUTER: 0	
		82 UNCOM: 122.800		102 AIR TAXI: 150	
18 AIRPORT USE: PUBLIC		83 WIND INDICATOR: YES-L		103 G A LOCAL: 7,300	
19 ARPT LAT: 32-40-31.214N ESTIMATED		84 SEGMENTED CIRCLE: YES		104 G A INSTRNT: 4,800	
20 ARPT LONG: 103-39-00.585W		85 CONTROL TWR: NONE		105 MILITARY: 0	
21 ARPT ELEV: 3315 SURVEYED		86 FSS: FORT WORTH		TOTAL: 12,250	
22 ACRES: 423		87 FSS ON ARPT: NO		OPERATIONS FOR	
23 RIGHT TRAFFIC: 05, 17		88 FSS PHONE NR: 817-740-3100		MOS ENDING	
24 NON-COMM LANDING: NO		89 TOLL FREE NR: 1-800-WX-BRIEF			
25 NPAS/FED AGREEMENTS: NGY					
26 FAR 139 INDEX:					
RUNWAY DATA					
30 RUNWAY IDENT:		05/26 17/35			
31 LENGTH:		5,375 4,996			
32 WIDTH:		75 75			
33 SURF TYPE-COND:		ASPH-G ASPH-G			
34 SURF TREATMENT:		12.5 12.5			
35 GROSS WT: 8W					
36 (N THSOS) 0W					
37 DTW					
38 DOTW					
LIGHTING/AID					
40 EDGE INTENSITY:		MED MED			
41 RWY MARK TYPE-COND:		BSC-G / BSC-G BSC-G / NP1-P			
42 VGS:		P2L / P2L			
43 THR CROSSING HGT:		1 / 14 23 / 23			
44 VISUAL GLIDE ANGLE:		1 / 3.00 3.00 / 3.00			
45 CNTRLN-TQZ:		- / - - / -			
46 RVR-RVY:		- / - - / -			
47 REL:		/ /			
48 APCH LIGHTS:		/ /			
OBSTRUCTION DATA					
50 FAR 77 CATEGORY:		A(V) / A(V) A(V) / A(RP)			
51 DISPLACED THR:		/ /			
52 CTLC OBSTN:		/ PLNE PLNE /			
53 OBSTN MARKED/LGTD:		/ M /			
54 HGT ABOVE RWY END:		/ 30 25 /			
55 DIST FROM RWY END:		/ 1,070 1,350 /			
56 CNTRLN OFFSET:		/ 05 05 /			
57 OBSTN CLNC SLOPE:		80:1 / 22:1 45:1 / 50:1			
58 CLOSE-IN OBSTN:		N / N N / N			
DECLARED DISTANCES					
60 TAKE OFF RUN AVBL (TORA):		/ /			
61 TAKE OFF DIST AVBL (TODA):		/ /			
62 ACFT STOP DIST AVBL (ASDA):		/ /			
63 LNDG DIST AVBL (LDA):		/ /			
(P) ARPT MGR PLEASE ADVISE F33 IN ITEM 64 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY P					
170 REMARKS:					
A 017 SERVICES ON CALL AFTER HRS CALL 915-753-6435.					
A 053 RWY 17 189' ANT 410' RIGHT OF CNTRLN.					
A 081 MRL RYS 08/28 & 17/25 PRESET LOW INTST; TO INCR INTST ACTVT - CTAF.					
A 110 THIS AIRPORT HAS BEEN SURVEYED BY THE NATIONAL GEODETIC SURVEY.					
111 INSPECTOR: (S) FAA Form 8010-1 (5-01)		112 LAST INSP: 02/12/2003		113 LAST INFO REQ:	

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 05/14/2003 AFD EFF: 07/18/2003 Form Approved OAS 2120-0015	
1 ASSOC CITY: MOBBS		4 STATE: NM		LOC ID: H03	
2 AIRPORT NAME: LEA COUNTY RGNL		5 COUNTY: LEA NM		FAA SITE NR: 16521.A	
3 CDB TO AIRPORT (NM): 64 W		6 REGIONADO: ASW/NONE		7 SECT AERO CHT: ALBUQUERQUE	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PUBLIC		70 FUEL: 100LL A		80 SINGLE ENG: 62	
11 OWNER: LEA COUNTY		71 AIRFRAME RPRS: MAJOR		81 MULTI ENG: 4	
12 ADDRESS: COURTHOUSE BOX 5C LOVINGTON, NM 88260		72 PWR PLANT RPRS: MAJOR		82 JET: 6	
13 PHONE NR: 805-396-8321		73 BOTTLE OXYGEN: NONE		TOTAL: 66	
14 MANAGER: BILL GATCHELL		74 BULK OXYGEN:		83 HELICOPTERS: 0	
15 ADDRESS: BOX 1106 MOBBS, NM 88241		75 TSNT STORAGE: MGR TIE		84 GLIDERS: 0	
16 PHONE NR: 505-393-4943		76 OTHER SERVICES:		85 MILITARY: 0	
17 ATTENDANCE SCHEDULE:		AFRT AMB CARGO CNTR INSTR RNTL SALES		86 ULTRA-LIGHT: 0	
MONTHS DAYS HOURS		FACILITIES		OPERATIONS	
ALL ALL 0600-2200		80 ARPT BSN: CG		100 AIR CARRIER: 0	
18 AIRPORT USE: PUBLIC		81 ARPT LGT SKED: DUSK-DAWN		101 COMMUTER: 0	
19 ARPT LAT: 32-41-15.100N ESTIMATED		82 UNCOM: 122.850		102 AIR TAXI: 3,812	
20 ARPT LONG: 103-13-01.300W		83 WIND INDICATOR: YES-L		103 G A LOCAL: 6,235	
21 ARPT ELEV: 3661 SURVEYED		84 SEGMENTED CIRCLE: YES		104 G A (FRONT): 6,198	
22 ACRES: 898		85 CONTROL TWR: YES		105 MILITARY: 627	
23 RIGHT TRAFFIC: NO		86 FES: ALBUQUERQUE		TOTAL: 16,572	
24 NON-COMM LANDING: NO		87 FES ON ARPT: NO		OPERATIONS FOR	
25 NPAS/FED AGREEMENTS: NCY3		88 FES PHONE NR: 805-343-7831		MOS ENDING	
26 FAR 136 INDEX: AU 05/1985		89 TOLL FREE NR: 1-800-WX-BRIEF			
RUNWAY DATA					
30 RUNWAY IDENT:		05/21	05/28	12/30	17/35
31 LENGTH:		7,398	3,812	6,802	4,998
32 WIDTH:		150	150	150	150
33 SURF TYPE-COND:		ASPH-C	ASPH-F	ASPH-G	ASPH-P
34 SURF TREATMENT:					
35 GROSS WT: SW		85	12	80	82
36 (N THSDS) SW		100		120	50
37 GTW					
38 DOTW					
LIGHTING/APCH AIDS					
40 EDGE INTENSITY:		HIGH		MED	
42 RWY MARK TYPE-COND		PR - G / NPI - G	BSC - F / BSC - F	NPI - G / NPI - G	BSC - G / BSC - G
43 VGS:		/ V4L	/	/ V4L	/
44 THR CROSSING HGT		/ 44	/	/ 49	/
45 VISUAL GLIDE ANGLE		/ 3.00	/	/ 3.00	/
46 CNTRLN-TDZ		/ -	/ -	/ -	/ -
47 RWY-RW		/ -	/ -	/ -	/ -
48 REL		/	/	/	/
49 APCH LIGHTS		MALSR / OCALS	/	/	/
OBSTRUCTION DATA					
50 FAR 77 CATEGORY		PR / C	A(V) / A(V)	B(V) / C	E(V) / E(V)
51 DISPLACED THR		/	/	/	492 /
52 GTLG OBSTN		/ TREE	/ FENCE	/	/ PLNE
53 OBSTN MARKED/LGTD		/	/	/	/
54 HGT ABOVE RWY END		/ 25	/ 5	/	/ 27
55 DIST FROM RWY END		/ 824	/ 330	/	/ 250
56 CNTRLN OFFSET		/ 437L	/ 65	/	/ 88
57 OBSTN CLNG SLOPE		80:1 / 21:1	21:1 / 80:1	80:1 / 80:1	2:1 / 80:1
58 CLOSE-IN OBSTN		N / N	N / N	N / N	Y / N
DECLARED DISTANCES					
59 TAKE OFF RUN AVBL (TORA)		/	/	/	/
61 TAKE OFF DIST AVBL (TODA)		/	/	/	/
62 ACFT STOP DIST AVBL (ASDA)		/	/	/	/
63 LNDG DIST AVBL (LDA)		/	/	/	/
1) ARPT MGR PLEASE ADVISE FSS IN ITEM 64 WHEN CHANGES OCCUR TO ITEMS PRECEDED BY 1)					
110 REMARKS:					
A 025 CLED TO ACR OPNS WITH MORE THAN 30 PSCR SEATS EXCP PPR CALL AMGR 805-203-4943. RYS 08/26 & 17/35 NOT AVBL FOR ACR OPNS WITH MORE THAN 30 PSCR SEATS.					
A 030 RY 05/28 CLED INDEPLY.					
A 033 RY 17/35 PAVEMENT TRAVELLING WITH CRACKS; VEGETATION GROWING THRU CRACKS.					
A 057 RY 17 APCH RATIO 3:1 TO DSPLCD THRL.					
A 058 RY 17 +17 FT ROAD 150 FT FM THR & 8 FT FENCE 100 FT FM THR.					
A 060 RY 03 TORA - 7398; TODA - 7398; ASDA - 7398; LDA - 7398.					
A 060 RY 05 TORA - 3512; TODA - 3512; ASDA - 3512; LDA - 3512.					
A 060 RY 12 TORA - 6001; TODA - 6001; ASDA - 6001; LDA - 6001.					
111 INSPECTOR: /		112 LAST INSP: 05/22/2002		113 LAST INFO REQ:	
FAA Form 5010-1 (5-01)		SUPERSEDES PREVIOUS			

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		AIRPORT MASTER RECORD		PRINT DATE: 02/15/2003 AFD EFF: 07/10/2003 Form Approved OMB 2120-0015	
1 ASSOC CITY: SEMINOLE		4 STATE: TX		LOC ID: 397E	
2 AIRPORT NAME: SEMINOLE SPRAYING SERVICE		5 COUNTY: GAINES TX		FAA SITE NR: 24787.2A	
3 CDB TO AIRPORT (NM): 04 W		6 REGION/ADO: ASW/NONE		7 SECT AERO CNT: ALBUQUERQUE	
GENERAL		SERVICES		BASED AIRCRAFT	
10 OWNERSHIP: PRIVATE		70 FUEL: 100		80 SINGLE ENG: 0	
11 OWNER: SEMINOLE SPRAYING SERVICE		71 AIRFRAME RPRS: NONE		91 MULTI ENG: 0	
12 ADDRESS: RT 4 BOX 141		72 PWY PLANT RPRS: NONE		92 JET: 0	
SEMINOLE, TX 79360		73 BOTTLE OXYGEN: NONE		TOTAL: 0	
13 PHONE NR:		74 BULK OXYGEN: NONE		83 HELICOPTERS: 0	
14 MANAGER: JAMES DAVIS		75 TSTNT STORAGE: HGR		84 GLIDERS: 0	
15 ADDRESS: RT 4		76 OTHER SERVICES:		95 MILITARY: 0	
SEMINOLE, TX 79360				96 ULTRA LIGHT: 0	
16 PHONE NR: 815-755-5651					
17 ATTENDANCE SCHEDULE:		FACILITIES		OPERATIONS	
MONTHS DAYS HOURS		80 ARPT BCH:		100 AIR CARRIER: 0	
ALL MON-SAT DALGT		81 ARPT LGT SKED:		101 COMMUTER: 0	
		82 UNCOM:		102 AIR TAXI: 0	
		83 WIND INDICATOR: YES		103 G A LOCAL: 1,800	
18 AIRPORT USE: PRIVATE		84 SEGMENTED CIRCLE: NONE		104 G A IFRONT: 200	
19 ARPT LAT: 32-43-05.37N ESTIMATED		85 CONTROL TWR: NONE		105 MILITARY: 0	
20 ARPT LONG: 102-44-17.00W		86 FSS: PORT WORTH		TOTAL: 2,000	
21 ARPT ELEV: 3372 SURVEYED		87 FSS ON ARPT: NO			
22 ACREAGE:		88 FSS PHONE NR: 817-740-3100			
23 RIGHT TRAFFIC: NO		89 TOLL FREE NR: 1-800-WX-BRIEF		OPERATIONS FOR	
24 NON-COMM LANDING: NO				MOS ENDING	
25 NPAS/ED AGREEMENTS:					
26 FAR 130 INDEX:					
RUNWAY DATA					
30 RUNWAY IDENT:		06/28 17/35			
31 LENGTH:		2,700 4,000			
32 WIDTH:		75 50			
33 SURF TYPE-COND:		GRAVEL-F ASPH-P			
34 SURF TREATMENT:		12			
35 GROSS WT: STW					
36 (N THDS) DM					
37 DTW					
38 DDTW					
LIGHTING/APCH AIDS					
40 EDGE INTENSITY:		/ /			
42 RWY MARK TYPE-COND:		/ /			
43 VCS:		/ /			
44 THR CROSSING HGT:		/ /			
45 VISUAL GLIDE ANGLE:		N-N / N-N			
46 CNTRLN-TQZ:		N-N / N-N			
47 RVR-RV:		N-N / N-N			
48 REL:		N-N / N-N			
49 APCH LIGHTS:		/ /			
OBSTRUCTION DATA					
50 FAR T7 CATEGORY:		/ /			
51 DISPLACED THR:		/ /			
52 CTLG OBSTN:		ROAD / FENCE ROAD / PINE			
53 OBSTN MARKED LGTD:		/ /			
54 HGT ABOVE RWY END:		/ /			
55 DIST FROM RWY END:		150 / 150 330 / 800			
56 CNTRLN OFFSET:		/ /			
57 OBSTN CLNG SLOPE:		12:1 / 37:1 9:1 / 12:1			
58 CLOSE-IN OBSTN:		Y / Y Y / N			
DECLARED DISTANCES					
60 TAKE OFF RUN AVBL (TORA):		/ /			
61 TAKE OFF DIST AVBL (TODA):		/ /			
62 ACFT STOP DIST AVBL (ASDA):		/ /			
63 LGND DIST AVBL (LDA):		/ /			
110 REMARKS					
A 053 RWY 06 ROAD 180FT FM THR.					
A 054 RWY 17 LOADING PLATFORM WITH 8FT CHEMICAL TANK 174FT FROM THRESHOLD					
A 055 RWY 20 4FT FENCE 150FT FM THR.					
A 118-01 ASPH RWY, TWY AND APRON COND. POOR.					
A 118-02 GRAVEL RWY, TWY COND. FAIR					
111 INSPECTOR (N) FAA Form 5010-1 (5-91) SUPERSEDES PREVIOUS					
112 LAST INSP:					
113 LAST INFO REC: 07/27/1993					

Attachment D: NTSB Commercial Aircraft Accident Rate Data 1987-1997

Table 2 - ACCIDENT RATES
14 CFR 121 OPERATIONS
1987 - 1997
(Excerpted from page 4 of Reference 4)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Accidents Rates^a											
Miles Flown ^b	.0076	.0064	.0061	.0049	.0054	.0036	.0044	.0040	.0064	.0063	.0073
Hours Flown ^c	.310	.260	.248	.198	.221	.146	.181	.168	.267	.269	.309
Departures Flown ^c	.434	.376	.366	.297	.333	.228	.285	.267	.426	.450	.475
Fatal Accident Rates^a											
Miles Flown ^b	.0009	.0004	.0024	.0012	.0008	.0008	.0002	.0007	.0005	.0009	.0006
Hours Flown ^c	.038	.018	.098	.049	.034	.032	.008	.030	.022	.036	.025
Departures Flown ^c	.053	.026	.144	.074	.051	.051	.012	.049	.035	.061	.039

^a Per Million Miles Flown

^b Per Hundred Thousand Hours and Departures Flown

^c A nonfatal accident, occurring 4/7/94, that involved criminal activity is excluded from accident rates. The 12/21/88 sabotage involving a Pan Am B747-100 and the 12/7/87 suicide/sabotage involving a PSA BAe-146e are also excluded from accident rate computations.

Attachment E: Geographical Coordinates of Proposed NEF Site

From: HARPER George A
Sent: Wednesday, October 15, 2003 11:40 AM
To: YEUNG Moses
Subject: FW: Lat-Long for NEF

George A. Harper, P.E.
Manager, Regulatory Compliance Programs
Framatome ANP
400 Donald Lynch Boulevard
Marlborough, MA 01752
Office: 978.568.2728
Cell: 508.795.9420
Fax: 978.568.3731
Email: george.harper@framatome-anp.com

-----Original Message-----

From: HARPER George A
Sent: Thursday, September 04, 2003 11:47 AM
To: MARKOVICH Ronald J; MAHER Edward F
Subject: Lat-Long for NEF

As of yesterday, the "official" lat-long for the site as measured at the Centerline of the door into the TSB is:

32 deg, 26 min, 1.74 sec N
-103 deg, 4 min, 43.47 sec W

This will change slightly as plant is moved around, but should suffice for our work. It agrees closely with what I used for the tornado study and seismic.

Please distribute to you team as required.

George

George A. Harper, P.E.
Manager, Regulatory Compliance Programs
Framatome ANP
400 Donald Lynch Boulevard
Marlborough, MA 01752
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