UNITED STATES TAX COURT

FRANCIS M. GAGLIARDI Petitioner, v. COMMISSIONER OF INTERNAL REVENUE, Respondent.	))))))))))	Docket No. 23912-05

EXPERT WITNESS REPORT OF MARK C. NICELY, MATHEMATICIAN AND CASINO GAMING CONSULTANT

I, Mark C. Nicely, hereby provide the following expert witness report on behalf of Petitioner, Francis M. Gagliardi:

I. QUALIFICATIONS.

I am trained as a mathematician and computer engineer, having graduated with a Bachelors of Science in Electrical and Computer Systems Engineering degree from Renssalear Polytechnic Institute. I am currently a casino gaming consultant and director of gaming design for a casino software company. I have extensive experience in the casino and gaming industry, as reflected in my curriculum vitae attached as Exhibit 1, including working as a director of mathematics and director of product development for a multi-media slot machine manufacturer, as well as past and ongoing consulting to gaming and slot machine manufacturers.

II. ENGAGEMENT AND SUMMARY OF OPINIONS.

I have been retained by Plaintiff Frank Gagliardi, through his counsel, to calculate (1) the expected financial outcome for the years 1999, 2000 and 2001 of Mr. Gagliardi based on the frequency, nature and amount of his casino machine gambling, and (2) the likelihood that

Mr. Gagliardi could actually have achieved financial “break even” or better from casino machine gambling during this period.

It is my opinion, as discussed more fully below, that for the years 1999, 2000, and 2001, Mr. Gagliardi’s casino gaming machine play resulted in respective losses of approximately $638K, $678K, and $507K, with an error range of plus or minus $65K, $72K and $83K, respectively (with a 95% confidence level). The probability that Mr. Gagliardi achieved financial break even or better in those years under the described betting circumstances/assumptions is astronomically unlikely (greater than 1 in a trillion).

III. DISCUSSION OF CALCULATIONS AND BASIS.

A. Summary.

My calculations are summarized in the accompanying Data and Calculations Chart, attached hereto as Exhibit 2. One sample curve is illustrated in the accompanying Graph attached hereto as Exhibit 3. Below I discuss my approach, assumptions, and calculations.

B. Approach.

I used industry-standard statistical approaches and calculations to analyze Mr. Gagliardi’s gambling play to determine the results of the questions posed. As set forth in the Data and Calculations Chart (“Chart”), I learned the frequency, nature and amount of Mr. Gagliardi’s play through my discussions with him about his gambling patterns. I also had the benefit of his reported wins from his W2-G forms. Based upon the type of gaming machines, the location of the casinos he frequented and the calendar years involved, I then drew upon my own industry experience and relevant literature to determine the appropriate Return to Player (“RTP”) ratios and related standard deviation. As discussed more fully below, I utilized an average RTP assumption as well as a “best case” and “worst case” assumptions to illustrate the likely range of outcomes. I then calculated the expected financial outcomes, the normal range of these outcomes, and calculated a lower limit for the odds that Gagliardi could have achieved financial break-even or better as set forth in the Chart.

C. Assumptions.

Mr. Gagliardi indicates that he gambled almost every day for stretches up to 15 to 20 hours, and that his level of gambling increased from 1999 through to 2001. The following conservative assumptions, based on information from Mr. Gagliardi, were used for the analysis. I accounted for 250, 275 and 325 full days of gambling for each of the years 1999, 2000 and 2001 respectively. For each full day of gambling, I accounted for 7 hours of effective gambling, at a rate of 250 games per hour, or just over 4 games per minute.

Mr. Gagliardi indicated that he would vary his bet, with low bets in the $3.75 and his highest bets being $20 for Keno and $16 for video slots. I used average bet values of $9.00, $9.50 and $10.00 for each of the years 1999, 2000 and 2001 respectively. These figures seem reasonable within the context of my industry knowledge and experience of serious gamblers.

As for the assumptions of the Return to Player percentage or RTP, the RTP is the long-term expected average return to player relative to the wagers placed, expressed as a percent. For the devices Mr. Gagliardi was playing at the time, the RTP is literally programmed into the casino gaming machine, thus ensuring a significant "House Edge". Native American casinos in California are not required to publish the expected payback of their casino gaming machines, nor were they required to do so during the years at issue.

My own online research and industry experience were used to derive appropriate RTP ratios. In 2003, The Weekly Standard and Wall Street Journal both reported a 70% RTP for Native American casinos in California. The keno machine Mr. Gagliardi played has operator selectable RTP, in 5% increments, between 55% payback and 90% payback, with a default setting of 80%. From my industry experience, California casino operators were setting their RTP in the low to mid 80% range in the late 1990s. I believe the low-to-mid 80% range is the most likely RTP for San Diego County Native American casinos during the years in question. The RTP has likely increased at Native American casinos within the last few years with the increased expansion in Nevada-style slot machines. Other published sources indicate 90% as the highest expected payback for more recent times. For these reasons, I created three scenarios based upon three different RTP assumptions: 90% for best case (best possible player payback), 70% for worst case (worst possible player payback), and 83% for average case (the most likely player payback).

Similarly, I relied upon a range of industry standard top award allocation percentages to analyze only the base-game effect (since the top awards were captured via W-2G filings.) Even this range is conservative as I have seen game models with 1% or lower allocated to top awards and as high as 6%.

The Standard Deviation or "SD" value is based upon the median SD value of the types of keno and video slot games that Mr. Gagliardi reported to play when excluding the effect of large awards which would have triggered a W2-G filing.

D. Calculations.

The calculations relied upon the simple arithmetic to calculate the expected loss and confidence intervals to determine expected outcome range, per the standard statistical technique for predicting wins or losses in the casino industry. Confidence intervals were also used to try to quantify the likelihood of Mr. Gagliardi having a break-even or better results, per the standard statistical method for analyzing actual wins or losses in the casino industry.

In the casino industry, a confidence level of either 90% and 95% is the typically used. I chose to use the more conservative 95% confidence level.

My calculations can be illustrated in more detail by focusing on the Chart and reviewing 1999 using the "average" assumptions.

The reported wins, $131,281, was indicated from the W2-Gs. The total number of games, 437,500, is the product of bets/hour x hours/day x days of gambling in 1999, or

250 x 7 x 250. The total money wagered, $3,937,500, is the product of the number of games x the average bet size of $9. As I already knew the winning from top awards, I therefore had to calculate the expected base-game awards (all awards excluding those which would trigger a W2-G filing) based on a base-game RTP of 80.5%. = 83.0% - 2.5% for top awards. The product, $3,937,500 of total wagers x 80.5%, is the expected base-game awards $3,169,688. Adding the $131,281 of known top awards with the $3,169,688 of expected base-game awards yielded a total expected awards of $$3,300,969. The expected total win was therefore - $3,937,500 + $3,300,969 = -$636,532, or in other words, a loss of $636K

Because of the stochastic nature of gambling, Mr. Gagliardi's actual winnings were likely to have varied somewhat from the expected average due to the effect of natural random fluctuations. To determine the expected range due to these possible fluctuations, I relied industry-standard confidence intervals. The plus/minus variation range about an expected value can be expressed as:

normal variation range = $(z \sigma / \sqrt{n})$

where:

z = normal distribution z-score. For a 95% confidence level, we use z=1.960

σ = standard deviation of the base game, or 5.6

√n = square root of the total number of games

Therefore, the normal variation range = 1.960 x 5.6 / √437,500 = 1.66% of RTP. The resulting plus/minus range is there for 1.66% x total money wagered or 1.66% x $3,937,500 = $65,338.

To calculate the odds that the overall winnings matched or exceeded the wagers, I used the same confidence interval equation as above, but I determined the value of z needed to produce the normal variation range required to include the break-even point. Specifically, I calculated that the base-game would have needed an RTP of 96.7% in order for the base-game winnings to be $ $3,806,219 = total money wagered of $3,937,500 – top award wins of $131,281. This would require a normal variation range of 16.2% = 96.7% required – 80.5% expected. Solving the confidence interval equation of 16.2% = (z x 5.6) / √960,000, yields a value of z=19.1.

Normal distribution z-score tables published in statistics books and mathematical handbooks usually only publish the probability equivalent of z values up to 3.0 (also known as "3 sigma"). One statistics book did list the odds for z=5 in excess of 1 in 3 million. The NORMDIST function in excel, works up to z=7.5 and produces corresponding odd in excess of 1 in 13 trillion. An outcome with a z score of z=19.1 is so astronomically improbable as to be safely considered to be impossible.

The other rows in the Chart use the same calculations as described above. For the different years, a different number of gambling days is used, as well as the corresponding W2-G wins for those years. For the other best case and worst case scenarios, the alternate RTP assumptions are used as described therein.

To visually represent the impossibility of an overall win, I constructed a graph of the probability curve for the overall expected results using the most optimistic assumptions. Marked on the graph is the average expected loss of $775K, as well as the high and low ranges of $647K and $903K. This curve is a normal bell-shape curve, but it appears somewhat triangular looking because the x-axis is stretched so far to the left in order to demonstrate how far away the expected range is from the break even point.

Dated: August ____, 2006

Respectfully Submitted,

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MARK C. NICELY

EXHIBIT 1

CURRICULUM VITAE
OF MARK C. NICELY

<u>EXHIBIT 2</u>

DATA AND CALCULATION CHARTS

WAGER INPUTS

bets/hour	250
hours/day	7

GAME INPUTS

RTP	total RTP	top awards RTP	base game RTP	scenario
	83%	2.5%	80.5%	average
	90%	2.0%	88.0%	best
	70%	4.0%	66.0%	worst
SD	5.6			

Confidence Level: 95.00%

average assumptions

year	average wager	gambling days/year	reported wins*	number of games	total money wagered	expected total win*	break even probability	odds of break even
1999	$9.0	250	$131,281	437,500	$ 3,937,500	-$637K ± $065K	infinitesimal	astronomical
2000	$9.5	275	$213,188	481,250	$ 4,571,875	-$678K ± $072K	infinitesimal	astronomical
2001	$10.0	325	$602,362	568,750	$ 5,687,500	-$507K ± $083K	infinitesimal	astronomical
TOTAL	**$9.54**	**850**	**$946,831**	**1,487,500**	**$14,196,875**	**-$1,822K ± $128K**	**infinitesimal**	**astronomical**

best case assumptions

year		gambling days/year	reported wins*	number of games	total money wagered	expected total win*	break even probability	odds of break even
1999	$9.00	250	$131,281	437,500	$ 3,937,500	-$341K ± $065K	infinitesimal	astronomical
2000	$9.50	275	$215,180	481,250	$ 4,571,875	-$333K ± $072K	infinitesimal	astronomical
2001	$10.00	325	$582,623	568,750	$ 5,687,500	-$100K ± $083K	0.902%	1 in 110.9
TOTAL	**$9.54**	**850**	**$929,084**	**1,487,500**	**$14,196,875**	**-$775K ± $128K**	**infinitesimal**	**astronomical**

worst case assumptions

year		gambling days/year	reported wins*	number of games	total money wagered	expected total win*	break even probability	odds of break even
1999	$9.00	250	$131,281	437,500	$ 3,937,500	-$1,207K ± $065K	infinitesimal	astronomical
2000	$9.50	275	$215,180	481,250	$ 4,571,875	-$1,339K ± $072K	infinitesimal	astronomical
2001	$10.00	325	$582,623	568,750	$ 5,687,500	-$1,351K ± $083K	infinitesimal	astronomical
TOTAL	**$9.54**	**850**	**$929,084**	**1,487,500**	**$14,196,875**	**-$3,898K ± $128K**	**infinitesimal**	**astronomical**

* The reported wins were provided to me by counsel for Petitioner. The documents/calendars reflecting such wins are attached to this Exhibit 2 for each of the tax years 1999, 2000, and 2001.

** Such expected total losses are consistent with Mr. Gagliardi's funds available for gambling, as reflected in the attached Estimated Cash Available for Gambling included with this Exhibit 2. Such document was provided to me by Petitioner's accountant.

<u>EXHIBIT 3</u>

GRAPH