

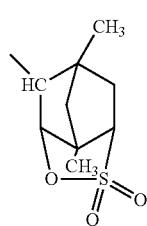
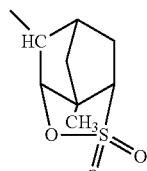
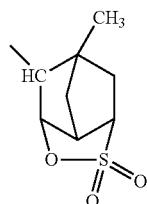
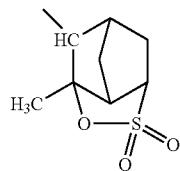
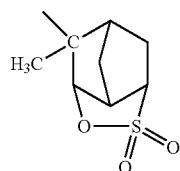
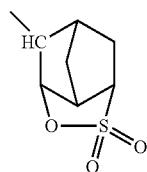
**65**

When z is 2, the plurality of R<sup>27</sup> groups may be the same or different.

Examples of the alkyl group, alkoxy group, halogenated alkyl group, —COOR" group, —OC(=O)R" group and hydroxylalkyl group for R<sup>27</sup> include the same alkyl groups, alkoxy groups, halogenated alkyl groups, —COOR" groups, —OC(=O)R" groups and hydroxylalkyl groups as those described above as the substituent for the —SO<sub>2</sub>-containing cyclic group.

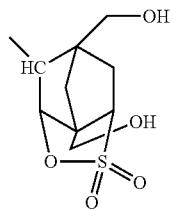
Specific examples of the cyclic groups represented by general formulas (3-1) to (3-4) are shown below. In the formulas shown below, "Ac" represents an acetyl group.

[Chemical Formula 23]

**66**

-continued

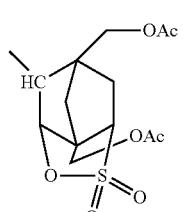
(3-1-7)



5

10

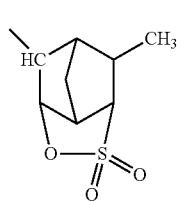
(3-1-1)



15

20

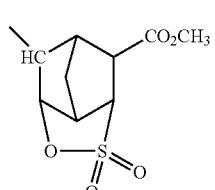
(3-1-2)



25

30

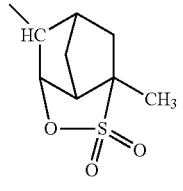
(3-1-3)



35

40

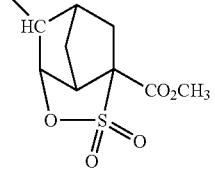
(3-1-4)



45

50

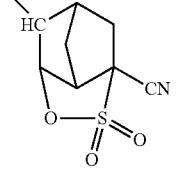
(3-1-5)



55

60

(3-1-6)



65

65

(3-1-8)

(3-1-9)

(3-1-10)

(3-1-11)

(3-1-12)

(3-1-13)

(3-1-14)

## **Directors' Declaration**

The Directors of the Group declare that:

- 1 the Financial Statements and Notes as set out on pages 54 to 105 are in accordance with the *Corporations Act 2001* and:
  - a) comply with Australian Accounting Standards and the *Corporations Regulations 2001* and International Financial Reporting Standards as disclosed in Note 1; and
  - b) give a true and fair view of the consolidated entity's financial position as at 31 December 2014 and of the performance for the financial year ended on that date;
- 2 the Chief Executive Officer and Chief Financial Officer have declared that:
  - a) the financial records of the Group for the year ended have been properly maintained in accordance with section 286 of the *Corporations Act 2001*;
  - b) the financial statements and notes for the financial period comply with the Accounting Standards; and
  - c) the financial statements and notes give a true and fair view;
- 3 in the Directors' opinion there are reasonable grounds to believe that the Group will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.



*Michael Hannell  
Chairman  
Adelaide  
Dated this 31<sup>st</sup> day of March 2015*

The following table explains each field in these displays.

Field Name	Description
Mark	Shows the element mark. A mark is either a system-assigned mark or a user assigned-name, and is the same as that shown on the display. A mark is six characters long and the first character is an asterisk (*) and the last character is a blank. The middle four characters are: <ul style="list-style-type: none"> <li>• For a system-assigned mark, the middle four characters are one character for the element type followed by a three-digit sequence number. For graphics elements, the element type is G and the sequence number is 001 to 999.</li> <li>• For a user-assigned name, the middle four characters are four characters specified as the value for the element name.</li> </ul>
Measurement method	Shows the measurement method used to specify position. You can change this value by pressing F6. You can also select centimeters or inches for the measurement unit on the Define Overlay Specifications display or the Define PFD Specifications display by specifying unit of measure.
Start position	The start position parameter consists of across and down values. These values specify the horizontal and vertical position of the upper left corner of the element being defined.
End position	The end position parameter consists of across and down values. These values specify the horizontal and vertical position of the lower right corner of the element being defined. <b>Note:</b> Start position and End position determine the size of the graphics data to be mapped.
Source object type	Type 1 (PC document) or 2 (File) to specify the source object type.
Folder	Specifies the folder name where the PC document resides.
PC document	Specifies the PC document name which contains the graphics data.
File	Specifies the file name where the member resides.
Library	Specifies the library name where the file resides.
Member	Specifies the member name which contains the graphics data.
Element	Specifies the element name that appears on the image area instead of a regular graphics element mark, such as *G003. The default value is blank which is to display the regular element mark.
Degree of rotation	Specifies the degrees of rotation of the graphics in terms of an angle measured clockwise from the overlay, page layout, or record layout. The default value is 0.
Font	Specifies a font number. Font can be specified as 1 to 8, or *DEFAULT. Each number or *DEFAULT is defined in the Work with Source Overlay Fonts or the Work with PFD Definition Fonts display. You can see the list of fonts and select one of them by placing the cursor in this field and pressing F4. <b>Note:</b> It is not checked if the specified font exists and is a SBCS font. If it does not exist, some errors may occur when this graphics element is printed. If you specify a DBCS font, the result is unpredictable. Some unexpected characters may be printed, or some errors may occur.

Press Enter after you specify the parameters, press the F4 key to specify more parameters, or press F3 or F12 to cancel the operation.

**Select Field in Record Format (Graphics):** If you press F4 (Detail) in the Place Graphics Detail display when the cursor is in the *Folder*, *PC document*, *Library*, *File*, or *Member* prompt, the following occurs:

**(17) Valuation and Qualifying Accounts**

	Balance at January 1	Additions charged to expense	Amounts written off	Balance at December 31
(in thousands)				
1998				
Allowance for doubtful accounts	\$ —	\$ 291	\$ —	\$ 291
1999				
Allowance for doubtful accounts	\$ 291	\$ 90	\$ —	\$ 381
2000				
Allowance for doubtful accounts	\$ 381	\$ 408	\$ 49	\$ 740

**(18) Stock Plans**

The Company has established a share compensation plan that provides certain employees options to purchase shares of its common stock. The options vest over a period of five years from the date of grant. Options are exercisable during the term of employment or consulting arrangements with the Company and its subsidiaries. At December 31, 2000, the Company has authorized options for the purchase of 6,463,991 shares of common shares, of which 4,584,508 have been awarded to employees and 2,441,928 remain unexercised.

In accordance with a shareholders' agreement dated February 15, 1996 and amended on October 14, 1996, Euronet reserved 2,850,925 common shares for the purpose of awarding common shares ("milestone awards") to certain investors and options to acquire common shares ("milestone options") to the founders, management and key employees. The Company granted 800,520 milestone awards at an exercise price of \$0.02 per share and 2,050,405 milestone options at an exercise price of \$2.14 per share.

Upon the initial public offering of the Company on March 6, 1997, all milestone awards and milestone options granted under the milestone arrangement (with the exception of 49,819 options to certain key employees which vested equally over the two years following the initial public offering) vested and all shares became immediately issuable to beneficiaries of milestone awards and options. At that time, 800,520 milestone awards and 232,078 milestone options were exercised. As of December 31, 2000 1,428,303 milestone options remain unexercised.

Share option activity during the periods indicated is as follows:

	Number of Shares	Weighted-Average Exercise Price
Balance at December 31, 1997		
(1,984,365 shares exercisable)	2,798,206	\$ 2.67
Granted	941,396	5.87
Granted in Arksys acquisition	63,410	4.44
Exercised	(80,132)	2.13
Forfeited	(100,289)	6.23
Balance at December 31, 1998		
(2,174,412 shares exercisable)	3,622,591	\$ 3.46
Granted	1,140,830	5.02
Exercised	(228,503)	1.46
Forfeited	(233,194)	5.09
Balance at December 31, 1999		
(2,379,729 shares exercisable)	4,301,724	\$ 3.87
Granted	1,237,000	7.24
Exercised	(390,231)	2.43
Forfeited	(563,985)	6.00
Balance at December 31, 2000		
(2,441,928 shares exercisable)	4,584,508	\$ 4.65

## 13.1 Reliability, availability, and serviceability

Reliability, availability, and serviceability (RAS) are important concepts in the design of the IBM Spectrum Virtualize system. Hardware features, software features, design considerations, and operational guidelines all contribute to make the IBM Storwize V7000 system reliable.

Fault tolerance and high levels of availability are achieved by using the following methods:

- ▶ The Redundant Array of Independent Disks (RAID) capabilities of the underlying disks
- ▶ IBM Storwize V7000 nodes clustering using a *Compass* architecture
- ▶ Auto-restart of hung nodes
- ▶ Integrated Battery Backup Units (BBU) to provide memory protection if a site power failure occurs
- ▶ Host system failover capabilities using N-Port ID Virtualization (NPIV)

High levels of serviceability are available through the following methods:

- ▶ Cluster error logging
- ▶ Asynchronous error notification
- ▶ Automatic Dump capabilities to capture software detected issues
- ▶ Concurrent diagnostic procedures
- ▶ Directed Maintenance Procedures (DMP) with guided online replacement process
- ▶ Concurrent log analysis and memory dump data recovery tools
- ▶ Concurrent maintenance of IBM Storwize V7000 components
- ▶ Concurrent upgrade of IBM Storwize V7000 Spectrum Virtualize Software and firmware
- ▶ Concurrent addition or deletion of node canisters in the clustered system
- ▶ Automatic software version leveling when replacing a node
- ▶ Detailed status and error conditions that are displayed by LED indicators
- ▶ Error and event notification through Simple Network Management Protocol (SNMP), syslog, and email
- ▶ Optional Remote Support Assistant

The heart of IBM Storwize V7000 system is a pair of *node canisters*. These two canisters share the read and write data workload from the attached hosts and to the disk arrays. This section examines the RAS features of IBM Storwize V7000 system, monitoring, and troubleshooting.

Throughout this chapter, the term *IBM Storwize V7000* refers to both models of the product: IBM Storwize V7000 Gen2 and Gen2+.

### Movement in deferred tax balances

2013	Balance at 1 July	Recognised in profit or loss	Recognised in other comprehensive income	Foreign exchange	Balance at 30 June
<b>Deferred tax assets / liabilities:</b>					
Derivatives	808	(424)	–	–	384
Employee benefits	1,571	124	–	94	1,789
Provision for restoration and rehabilitation	3,390	1,428	–	349	5,167
Provision for obsolescence	278	(5)	–	36	309
Unrealised exchange losses	2,790	(2,979)	(566)	–	(755)
Other items	1,096	(428)	–	12	680
Tax losses	36,334	(36,334)	–	–	–
Mine properties and exploration	(65,205)	57,921	–	(457)	(7,741)
Available-for-sale financial assets	39	256	39	–	334
<b>Net deferred tax assets</b>	<b>(18,899)</b>	<b>19,559</b>	<b>(527)</b>	<b>34</b>	<b>167</b>

2012	Balance at 1 July	Recognised in profit or loss	Recognised in other comprehensive income	Foreign exchange	Balance at 30 June
<b>Deferred tax assets / liabilities:</b>					
Derivatives	680	128	–	–	808
Employee benefits	1,611	(55)	–	15	1,571
Provision for restoration and rehabilitation	2,683	664	–	43	3,390
Provision for obsolescence	449	(181)	–	10	278
Unrealised exchange losses	3,510	(617)	(103)	–	2,790
Other items	1,328	(230)	–	(2)	1,096
Tax losses	31,413	4,921	–	–	36,334
Mine properties and exploration	(59,776)	(5,389)	–	(40)	(65,205)
Available-for-sale financial assets	(339)	78	300	–	39
<b>Net deferred tax assets</b>	<b>(18,441)</b>	<b>(681)</b>	<b>197</b>	<b>26</b>	<b>(18,899)</b>

## Management's Discussion and Analysis

Dollar amounts are in thousands of Canadian dollars (except as noted)

### MHC Results

For the years ended December 31,

	Total Portfolio			Same Store			Non Same Store		
	2013	2012	% Change	2013	2012	% Change	2013	2012	% Change
Property revenue	\$19,253	\$22,653	(15.0)%	\$13,296	\$12,887	3.2%	\$5,957	\$9,766	(39.0)%
Property expenses									
Operating expenses	(4,308)	(4,921)	(12.5)%	(3,296)	(3,358)	(1.8)%	(1,012)	(1,563)	(35.3)%
Utility and fuel expenses	(2,048)	(2,418)	(15.3)%	(1,291)	(1,223)	5.6%	(757)	(1,195)	(36.7)%
Property taxes	(980)	(1,082)	(9.4)%	(559)	(525)	6.5%	(421)	(557)	(24.4)%
Total property expenses	(7,336)	(8,421)	(12.9)%	(5,146)	(5,106)	0.8%	(2,190)	(3,315)	(33.9)%
NOI	\$11,917	\$14,232	(16.3)%	\$8,150	\$7,781	4.7%	\$3,767	\$6,451	(41.6)%
Operating margin	61.9%	62.8%	(1.4)%	61.3%	60.4%	1.5%	63.2%	66.1%	(4.4)%

Killam's MHC business accounted for 14% of NOI from property operations during the year ended December 31, 2013, compared to 18% in 2012. Property revenue from the MHCs decreased 15.0% in 2013 compared to 2012, primarily due to the sale of twelve Western Canadian and Ontario MHC properties in May 2012 and ten New Brunswick MHC properties in November 2013. The impact of these sales was partially offset by increased revenue at same store properties. Killam's MHC properties were 98.1% occupied at December 31, 2013, consistent with the occupancy at December 31, 2012.

Same store MHC property revenue increased 3.2% for the year ended December 31, 2013, compared to 2012. This was a result of a 3.7% increase in weighted average rent per unit of \$222 up from \$214 in 2012. Total same store property expenses increased only by 0.8% in 2013, due primarily to lower water testing and water repair costs following recent capital upgrades, and negotiated garbage removal savings. The operating cost savings initiatives were offset by water cost increases of 5.6% and property tax increases of 6.5%.

Same store revenue growth, combined with efforts to minimize operating expenses, increased MHC same store NOI by 4.7% for the year ended December 31, 2013. Operating margins have also increased by 90 bps from 2012.

Non same store revenues and expenses were primarily generated by the twelve Western Canadian and Ontario MHC properties sold in May 2012 and the ten New Brunswick MHC properties sold in November 2013. These properties generated \$3.8 million in NOI in 2013 and \$6.5 million in 2012.

MPN/2493  
C2

S. No. 2691  
H. No. 6587

Republic of the Philippines  
Congress of the Philippines  
Metro Manila

Twelfth Congress

Third Regular Session

Begun and held in Metro Manila, on Monday, the twenty-eighth day of July, two thousand three.

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[ REPUBLIC ACT NO. 9296 ]

AN ACT STRENGTHENING THE MEAT INSPECTION SYSTEM IN THE COUNTRY, ORDAINING FOR THIS PURPOSE A "MEAT INSPECTION CODE OF THE PHILIPPINES" AND FOR OTHER PURPOSES

*Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:*

SECTION 1. *Short Title.* — This Act shall be known as "The Meat Inspection Code of the Philippines."

CHAPTER I  
DECLARATION OF POLICY AND DEFINITIONS

SEC. 2. *Declaration of Policy.* — It is hereby the policy of the State:

Our U.S. defined benefit plan assets consist of a balanced portfolio of equity and fixed income securities. Our non-U.S. defined benefit plan assets include a significant concentration of United Kingdom ("U.K.") fixed income securities. We monitor investment allocations and manage plan assets to maintain acceptable levels of risk.

For all periods presented, we used a measurement date of December 31 for each of our U.S. pension plans, non-U.S. pension plans and postretirement medical plans.

#### **U.S. Defined Benefit Plans**

We maintain qualified and non-qualified defined benefit pension plans in the U.S. The qualified plan provides coverage for substantially all full-time U.S. employees who receive benefits, up to an earnings threshold specified by the U.S. Department of Labor. The non-qualified plans primarily cover a small number of employees including current and former members of senior management, providing them with benefit levels equivalent to other participants, but that are otherwise limited by U.S. Department of Labor rules. The U.S. plans are designed to operate as "cash balance" arrangements, under which the employee has the option to take a lump sum payment at the end of their service. The difference between total accumulated benefit obligation and total projected benefit obligation ("Benefit Obligation") is immaterial.

The following are assumptions related to the U.S. defined benefit pension plans:

	<b>Year Ended December 31,</b>		
	<b>2020</b>	<b>2019</b>	<b>2018</b>
Weighted average assumptions used to determine Benefit Obligations:			
Discount rate	2.62 %	3.41 %	4.34 %
Rate of increase in compensation levels	3.63	3.50	3.50
Weighted average assumptions used to determine net pension expense:			
Long-term rate of return on assets	6.00 %	6.00 %	6.00 %
Discount rate	3.41	4.34	3.63
Rate of increase in compensation levels	3.56	3.50	4.01
Weighted-average interest crediting rates	3.79 %	3.79 %	3.79 %

At December 31, 2020 as compared with December 31, 2019, we decreased our discount rate from 3.41% to 2.62% based on an analysis of publicly-traded investment grade U.S. corporate bonds, which had a lower yield due to current market conditions. In determining 2020 expense, the expected rate of return on U.S. plan assets remained constant at 6.00%, primarily based on our target allocations and expected long-term asset returns. The long-term rate of return assumption is calculated using a quantitative approach that utilizes unadjusted historical returns and asset allocation as inputs for the calculation. For all U.S. plans, we adopted the Pri-2012 mortality tables and the MP-2020 improvement scale published in October 2020. We applied the Pri-2012 tables based on the constituency of our plan population for union and non-union participants. We adjusted the improvement scale to utilize the Proxy SSA Long Term Improvement Rates ("LTIR"), consistent with assumptions adopted by the Social Security Administration trustees, based on long-term historical experience. Currently, we believe this approach provides the best estimate of our future obligation. Most plan participants elect to receive plan benefits as a lump sum at the end of service, rather than an annuity. As such, the updated mortality tables had an immaterial effect on our pension obligation.

**'Irregularity'**: any infringement of a provision of Union and Community law resulting from an act or omission by an economic operator, which has, or would have, the effect of prejudicing the Union's budget.

**'Notification'** (or 'notify'): form of communication between the parties made in writing including by electronic means;

**'Performance of the contract'**: the execution of tasks and delivery of the purchased supplies by the contractor to the contracting authority;

**'Personnel'**: persons employed directly or indirectly or contracted by the contractor to perform the contract;

**'Professional conflicting interest'**: a situation in which the contractor's previous or ongoing professional activities affect its capacity to perform the contract to an appropriate quality standard.

**'Related person'**: any person who has the power to represent the contractor or to take decisions on its behalf;

**'Substantial error'**: any infringement of a contract provision resulting from an act or omission, which causes or might cause a loss to the Union's budget.

**'Supplier portal'**: the e-PRIOR portal, which allows the contractor to exchange electronic business documents, such as invoices, through a graphical user interface; its main features can be found in the supplier portal overview document available on: [http://ec.europa.eu/dgs/informatics/supplier\\_portal/doc/um\\_supplier\\_portal\\_overview.pdf](http://ec.europa.eu/dgs/informatics/supplier_portal/doc/um_supplier_portal_overview.pdf)

## **II.2. ROLES AND RESPONSIBILITIES IN THE EVENT OF A JOINT TENDER**

In the event of a joint tender submitted by a group of economic operators and where the group does not have legal personality or legal capacity, one member of the group is appointed as leader of the group.

## **II.3. SEVERABILITY**

Each provision of this contract is severable and distinct from the others. If a provision is or becomes illegal, invalid or unenforceable to any extent, it must be severed from the remainder of the contract. This does not affect the legality, validity or enforceability of any other provisions of the contract, which continue in full force and effect. The illegal, invalid or unenforceable provision must be replaced by a legal, valid and enforceable substitute provision which corresponds as closely as possible with the actual intent of the parties under the illegal, invalid or unenforceable provision. The replacement of such a provision must be made in accordance with Article II.11. The contract must be interpreted as if it had contained the substitute provision as from its entry into force.

## **II.4. DELIVERY OF SUPPLIES**

**II.4.1** The contractor must comply with the minimum requirements provided for in the tender specifications. This includes compliance with applicable obligations under environmental, social and labour law established by Union and Community

slowed gradually through a series of very weak oblique shock waves to a speed just above sonic velocity. Then the subsequent normal shock to subsonic could be quite weak. Such a combination of the weakest possible waves would result in the least waste of energy and the highest pressure recovery. The efficiency of various types of diffusers is shown in figure 3.20 and illustrates this principle.

An obvious complication of the supersonic inlet is that the optimum shape is variable with inlet flow direction and Mach number. In other words, to derive highest efficiency and stability of operation, the geometry of the inlet would be different at each Mach number and angle of attack of flight. A typical supersonic military aircraft may experience large variations in angle of attack, sideslip angle, and flight Mach number during normal operation. These large variations in inlet flow conditions create certain important design considerations.

(1) The inlet should provide the highest practical efficiency. The ratio of recovered total pressure to airstream total pressure is an appropriate measure of this efficiency.

(2) The inlet should match the demands of the powerplant for airflow. The airflow captured by the inlet should match that necessary for engine operation.

(3) Operation of the inlet at flight conditions other than the design condition should not cause a noticeable loss of efficiency or excess drag. The operation of the inlet should be stable and not allow "buzz" conditions (an oscillation of shock location possible during off-design operation).

In order to develop a good, stable inlet design, the performance at the design condition may be compromised. A large variation of inlet flow conditions may require special geometric features for the inlet surfaces or a completely variable geometry inlet design.

SUPERSONIC CONFIGURATIONS. When all the various components of the supersonic

airplane are developed, the most likely general configuration properties will be as follows:

(1) The *wing* will be of low aspect ratio, have noticeable taper, and have sweepback depending on the design speed range. The wing sections will be of low thickness ratio and require sharp leading edges.

(2) The *fuselage and nacelles* will be of high fineness ratio (long and slender). The supersonic pressure distribution may create significant lift and drag and require consideration of the stability contribution of these surfaces.

(3) The *tail surfaces* will be similar to the wing—low aspect ratio, tapered, swept and of thin section with sharp leading edge. The controls will be fully powered and irreversible with all movable surfaces the most likely configuration.

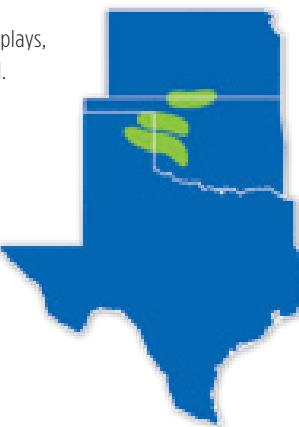
(4) In order to reduce interference drag in transonic and supersonic flight, the gross cross section of the aircraft may be "area ruled" to approach that of some optimum high speed shape.

One of the most important qualities of high speed configurations will be the low speed flight characteristics. The low aspect ratio swept wing planform has the characteristic of high induced drag at low flight speeds. Steep turns, excessively low airspeeds, and steep, power-off approaches can then produce extremely high rates of descent during landing. Sweepback and low aspect ratio can cause severe deterioration of handling qualities at speeds below those recommended for takeoff and landing. On the other hand, thin, swept wings at high wing loading will have relatively high landing speeds. Any excess of this basically high airspeed can create an impossible requirement of brakes, tires, and arresting gear. These characteristics require that the pilot account for the variation of optimum speeds with weight changes and adhere to the procedures and techniques outlined in the flight handbook.

## LIQUIDS-RICH AREAS

### 5 Anadarko Basin

The Anadarko Basin is home to four of Chesapeake's liquids-rich plays, which we anticipate will become significant contributors to our growth in the years ahead. Chesapeake was one of the first to utilize modern horizontal drilling methods and has assembled an unrivaled leasehold position in numerous horizontal liquids-rich plays in the basin. Chesapeake will continue drilling with a focus on the Granite Wash, where rates of return are the highest in our company, and with an increasing focus on the Cleveland, Tonkawa and Mississippian liquids-rich unconventional plays. We estimate we could drill up to 11,400 net wells on our Anadarko Basin acreage in the future and plan to utilize an average of 31 operated rigs in 2011 to further develop our current 1.7 million net leasehold acres.



#### 2010 Total Production:

145 bcfe, +4%, 14%

#### 12/31/10 Proved Reserves:

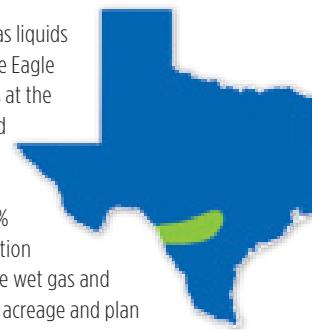
2,440 bcfe, +21%, 14%

#### 12/31/10 Net Leasehold Acres:

1,420,000, +15%, 11%

### 6 Eagle Ford Shale

As part of a growing emphasis on increasing oil and natural gas liquids production, Chesapeake has built the industry's second-largest leasehold position in the Eagle Ford Shale play in South Texas. In 2010 Chesapeake increased its leasehold from 80,000 net acres at the beginning of the year to more than 600,000 net acres. In November 2010, Chesapeake completed a \$2.2 billion Eagle Ford Shale joint venture agreement with Beijing-based CNOOC Limited (NYSE:CEO), whereby CNOOC acquired a 33.3% interest in 600,000 net leasehold acres in the Eagle Ford Shale. CNOOC paid Chesapeake approximately \$1.12 billion in cash at closing and will pay 75% of Chesapeake's share of drilling and completion expenditures until the \$1.08 billion carry obligation has been funded, which Chesapeake expects to occur by year-end 2012. Our focus has been in the wet gas and oil prone portions of the play. We estimate we could drill up to 5,500 net wells on our Eagle Ford acreage and plan to utilize an average of 23 operated rigs in 2011 to further develop our leasehold position in the Eagle Ford Shale. In addition, we believe that the Pearsall Shale should be prospective for natural gas underneath approximately 75% of our Eagle Ford leasehold.



#### 2010 Total Production:

2 bcfe, NM, NM

#### 12/31/10 Proved Reserves:

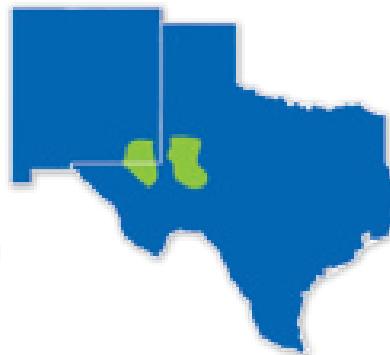
110 bcfe, NM, 1%

#### 12/31/10 Net Leasehold Acres:

470,000, +488%, 4%

### 7 Permian Basin

Chesapeake has built a strong position of approximately 1.2 million net leasehold acres in the Permian Basin including 560,000 net leasehold acres in the Bone Spring, Avalon, Wolfcamp and Wolfberry unconventional liquids plays. This area has the potential to deliver significant upside as we move toward increasing our oil production substantially in the years ahead. We have developed multiple new horizontal oil projects in this area, where we plan to utilize an average of approximately eight operated rigs in 2011 to further develop our leasehold in the Permian and Delaware basins and estimate we could drill up to 4,400 net wells.



#### 2010 Total Production:

60 bcfe, -20%, 6%

#### 12/31/10 Proved Reserves:

770 bcfe, +4%, 5%

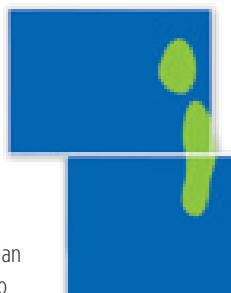
#### 12/31/10 Net Leasehold Acres:

1,200,000, -44%, 9%

### 8 Rockies

Chesapeake is the second-largest leasehold owner in the Niobrara Shale, Frontier and Codell plays in the Powder River and Denver Julesburg (DJ) basins of Wyoming and Colorado. In February 2011, Chesapeake completed a \$1.3 billion joint venture agreement with CNOOC, whereby CNOOC acquired a 33.3% interest in Chesapeake's approximately 800,000 net leasehold acres in the Powder River and DJ basins. CNOOC paid Chesapeake approximately \$570 million in cash at closing and will pay an additional \$697 million in carries by funding 66.7% of Chesapeake's

share of drilling and completion expenditures, which Chesapeake expects to occur by year-end 2014. We plan to utilize an average of approximately 11 rigs in 2011 to develop our current 535,000 net leasehold acres with our partner and estimate that we could drill up to 7,600 net wells.



#### 2010 Total Production:

0 bcfe, NM, NM

#### 12/31/10 Proved Reserves:

10 bcfe, NM, NM

#### 12/31/10 Net Leasehold Acres:

800,000, +135%, 6%

Note: Figures do not add to company totals.

\* Compared to last year

\*\* % of company total

\*\*\* Bossier Shale acreage overlaps with Haynesville Shale acreage

NM Not meaningful

## ■ Equity Exposures in Banking Book

### 1. Risk Management Policy and Procedures

Securities in the banking book are properly managed, for example, by setting upper limits on the allowable amount of risk under the market or credit risk management framework selected according to their holding purpose and risk characteristics.

For securities held as “available-for-sale securities,” the upper limits are also set in terms of price fluctuation risk.

Regarding stocks of subsidiaries, assets and liabilities of subsidiaries are managed on a consolidated basis, and risks related to stocks of affiliates are recognized separately. Their risk as equity is not measured as upper limits on the allowable amount of risk are set for stocks of subsidiaries and affiliates, and the limits are established within the “risk capital limit” of SMFG, taking into account the financial and business situations of the subsidiaries and affiliates.

### 2. Valuation of Securities in Banking Book and Other Significant Accounting Policies

Stocks of subsidiaries and affiliates are carried at amortized cost using the moving-average method. Available-for-sale securities with market prices (including foreign stocks) are carried at their average market prices during the final month of the fiscal year. Securities other than these securities are carried at their fiscal year-end market prices (cost of securities sold is calculated using primarily the moving-average method) and those with no available market prices are carried at cost using the moving-average method.

Net unrealized gains (losses) on available-for-sale securities and net of income taxes are reported as a component of “net assets.” Derivative transactions are carried at fair value.

### 3. Consolidated Balance Sheet Amounts and Fair Values

	Billions of yen			
	2011		2010	
March 31	Balance sheet amount	Fair value	Balance sheet amount	Fair value
Listed equity exposures .....	¥2,470.7	¥2,470.7	¥2,570.5	¥2,570.5
Stocks of subsidiaries and affiliates and equity exposures other than above.....	609.1	—	629.8	—
Total.....	¥3,079.7	¥ —	¥3,200.3	¥ —

### 4. Gains (Losses) on Sale and Devaluation of Stocks of Subsidiaries and Affiliates and Equity Exposures

	Billions of yen	
	Fiscal 2010	Fiscal 2009
Gains (losses) .....	¥ (91.9)	¥(10.1)
Gains on sale .....	27.5	57.2
Losses on sale.....	4.6	34.8
Devaluation.....	114.9	32.5

Note: The above amounts are gains (losses) on stocks and available-for-sale securities in the consolidated statements of income.

### 5. Unrealized Gains (Losses) Recognized on Consolidated Balance Sheets but Not on Consolidated Statements of Income

	Billions of yen	
	2011	2010
March 31		
Unrealized gains (losses) recognized on consolidated balance sheets but not on consolidated statements of income.....	¥383.8	¥483.6

Note: The above amount is for stocks of Japanese companies and foreign stocks with market prices.

### 6. Unrealized Gains (Losses) Not Recognized on Consolidated Balance Sheets or Consolidated Statements of Income

	Billions of yen	
	2011	2010
March 31		
Unrealized gains (losses) not recognized on consolidated balance sheets or consolidated statements of income.....	¥(52.7)	¥(39.7)

Note: The above amount is for stocks of affiliates with market prices.

Design Page Layout	Columns: 1- 74
Control .. PFD definition . . . . PRODUCTLBL	
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....	
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016	
017	
<a href="#">More...</a>	
F3=Exit      F6=Text      F9=Line      F10=Box	
F11=Bar code      F21=Element edit      F22=Block edit      F24=More keys	

Initially, nothing is defined in the page layout shown above. Place the record layout and define fixed data in the page interactively. You can define fixed data in the same way you did while designing the record layout.

You can place the record layout in the following steps.

**Example Action:** Move the cursor to the position (Across : 5, Down : 5) you want to place the record layout and press the F13 key.

Design Page Layout	Columns: 1- 74
Control .. PFD definition . . . . PRODUCTLBL	
*...+....1....+....2....+....3....+....4....+....5....+....6....+....7....	
001	
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<a href="#">More...</a>	
F3=Exit      F6=Place graphics      F9=Place page segment	
F11=Place record layout      F12=Cancel      F24=More keys	
<b>Press F6, F9 or F11 for graphics, page segment or record layout.</b>	

A percent sign (%) displays to indicate the cursor position. (A mark is not displayed because the element type has not yet been specified.)

The function key area changes and F11=Place record layout is displayed.

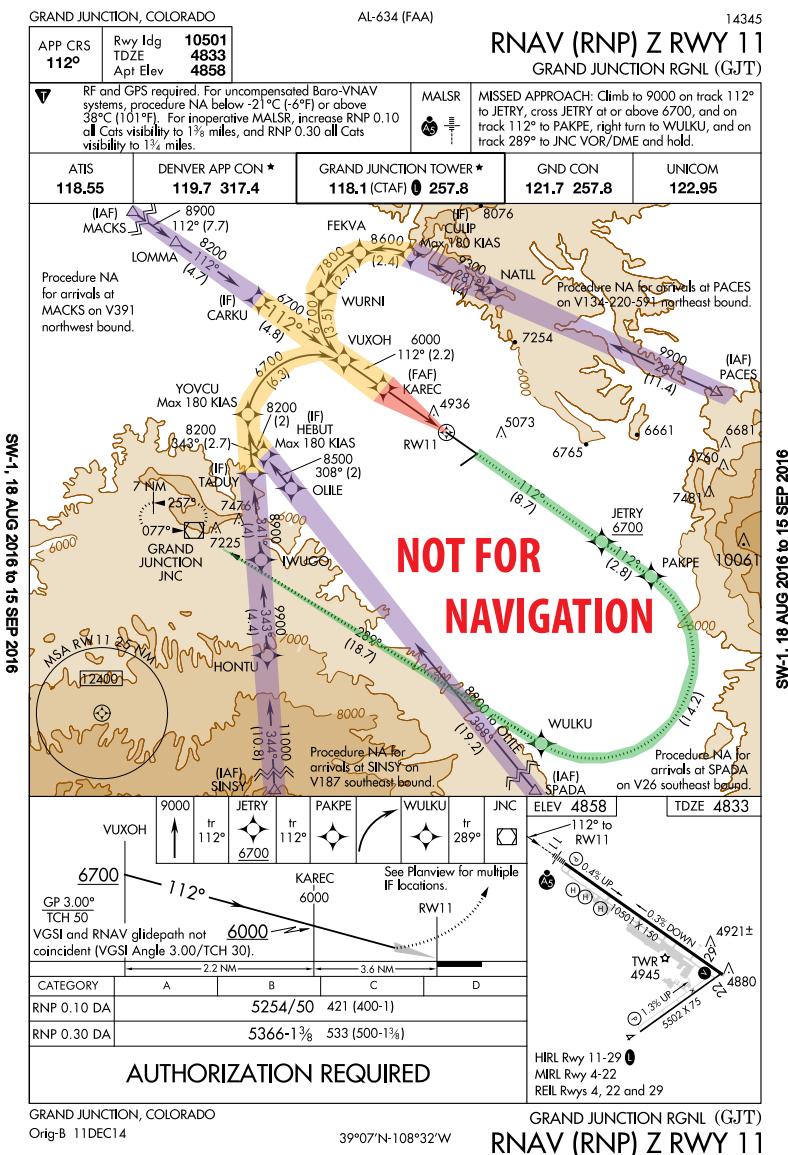
in the limit  $m_l \rightarrow m_s$  the  $SU(3)$ -breaking ratios are not constrained to unity, as would be the case in  $SU(3)$  HM $\chi$ PT. (In fact, the point  $m_l = m_s$  does not even lie within the range of validity of  $SU(2)$  HM $\chi$ PT and hence of Eqs. (78) and (79).) This is because, once the strange quark has been integrated out of the  $SU(2)$  theory, the expressions no longer contain explicit strange-quark mass dependence. All of the effects of the strange quark are encoded in the values of the low-energy constants, which differ in the  $SU(2)$  and  $SU(3)$  theories.

Although the coefficients of the chiral logarithms depend on the low-energy constants  $g_{B^*B\pi}$ ,  $f$ , and  $B$ , once these are fixed as we now describe, there are only two free parameters each in Eqs. (78) and (79): the overall normalization and the coefficient of the analytic term proportional to  $m_l$ . This allows us to smoothly match the  $SU(2)$  expressions onto the linear fit of the heavy data without ambiguity. In the chiral extrapolation we obtain our central value using  $g_{B^*B\pi} = 0.516$  for the  $B^*$ - $B$ - $\pi$  coupling, which comes from a two-flavor lattice determination in the static heavy quark limit by Ohki, Matsufuru, and Onogi [62]. We then vary the value of  $g_{B^*B\pi}$  over a reasonable spread of values based on both lattice calculations and phenomenological fits to experimental data in order to estimate the systematic uncertainty, as described in further detail in Sec. VI B. Moreover we set the leading-order pseudoscalar meson decay constant  $f$  to the experimental value of  $f_\pi = 130.4 \pm 0.04 \pm 0.2$  MeV [6]. This is consistent to the order in  $\chi$ PT at which we are working since it only modifies higher-order NNLO terms. Studies by both the MILC and JLQCD Collaborations suggest that the use of a physical parameter in the chiral coupling ( $f \rightarrow f_\pi$ ) leads to improved convergence of  $\chi$ PT [63, 64]. The scale in the chiral logarithms is fixed by setting  $\Lambda_\chi = 1$  GeV. For the low-energy constant  $B$  we use the value  $aB = 2.414(61)$  obtained from a NLO fit of the pseudoscalar meson masses [34]. Finally, whenever the residual quark mass appears, we use its value in the chiral limit  $am_{\text{res}} = 0.00315$ .

The results of the chiral extrapolation are shown in Figs. 5 and 6. The blue triangles (red squares) show the data obtained using APE (HYP) link smearing and are plotted versus the light sea quark mass. We indicate the location of the physical strange quark mass  $m_s$  by the black dot. The dashed vertical line marks the physical average  $u$ - $d$  quark mass, which is the point at which we extract the physical values for  $\Phi_{B_s}/\Phi_{B_d}$  and  $\sqrt{m_{B_s}/m_{B_d}}\xi$ . The agreement between the two smearings is good. For the case of the APE data, the  $\chi^2/\text{dof}$  for the fit of both  $SU(3)$ -breaking ratios is below one, indicating that the data are well-described by the linear fit function. For the HYP data, the  $\chi^2/\text{dof}$ 's are 1.8 for  $\Phi_{B_s}/\Phi_{B_d}$

use simulates the probability distribution of eigenvalues from the square of the quenched wave function (including the measure effects). This is very different in spirit than lattice approaches. It also is free from sign or phase problems. Also, because our matrices are diagonal, we have only  $6N$  degrees of freedom, so  $N$  can be made large at moderate cost. Using the same Monte-Carlo code, we will address the questions above for a particularly simple class of wave functions, namely those described by equation 1. For these wave functions the geometry of the eigenvalues looks like a five-sphere with a hole in the center, so we are not studying the process of topology changes. We are fixing the topology at the beginning. The issue we will study seems very mundane: how do we measure the radius of the hole? Since these are wave functions of fixed topology, we will not address the first question above at all: the topology is known so we do not need an algorithm to figure it out. We also have chosen the orientation of the feature on the sphere and do not have to orient the data to analyze the geometry. Given this, we can see by eye the topology on these simple situations by projecting the particles positions on the  $Z$  plane. The more general problem of also determining the topology for a random configuration with a complicated wave function would be hard: we would need to find a way to do pattern recognition on these distributions to define topology. Regarding measurement of size, we propose various definitions of the size of the simplest geometric features and we study their virtues and failings. In particular, to simplify matters further, we want to characterize the simplest such non-trivial feature: the radius of the hole compared to the radius of the sphere. In the end, from the different choices of definitions of the radius at finite  $N$ , one such class of measurements seems to give an optimal solution to the problem. For this particular class of observables we can then address the  $1/N$  corrections in more detail. The definitions we use are simple to describe, but that does not mean that they are optimal. We can only say that they are optimal only within the choices we have.

The paper is organized as follows. In section II we describe some basic aspects of the wave functions and statistical distributions that we simulate later on. In particular, we show how the thermodynamic limit should be taken:  $N \rightarrow \infty$ , keeping  $q = Q/N$  fixed. We also pay special attention to how a factor of  $N^2$  appears in front of the energy for the thermodynamic limit after appropriate rescalings. We also describe various functions that allow us to define the size of the features of the geometry of the eigenvalue distributions. The definition of the size depends on taking a limit  $k \rightarrow \infty$  of such measurements, so that one expects a well



### Complex IAP Example with RF Legs

- Feeder Routes** (highlighted in blue - See Simple IAP Example on previous page) may be used to provide a transition from the enroute structure to the IAF.
- Initial Approach** (highlighted in purple in examples above) is the segment between the initial approach fix (IAF) and the intermediate fix (IF) or the point where the aircraft is established on the intermediate course or final approach course.
- Intermediate Approach** (highlighted in yellow in examples above) is the segment between the intermediate fix or point and the final approach fix.
- Final Approach Course** (highlighted in red in the examples above) is the segment between the final approach fix or point and the runway, airport, or missed approach point.
- Missed Approach** (highlighted in green in the example above) begins at the MAP and continues until the designated fix or waypoint. Missed Approach Procedure Track is shown as a hash marked line in the planview. If the missed approach fix falls outside of the area of the planview it will be shown in a separate box in the planview.

## 2. Exposure Balance by Type of Assets and Residual Term

March 31, 2011	Billions of yen				
	Loans, etc.	Bonds	Derivatives	Others	Total
To 1 year .....	¥34,370.8	¥12,960.0	¥ 443.3	¥ 350.8	¥ 48,124.8
More than 1 year to 3 years.....	14,534.6	9,091.8	1,004.7	858.4	25,489.5
More than 3 years to 5 years.....	10,020.8	6,603.8	1,111.3	855.4	18,591.3
More than 5 years to 7 years.....	3,917.6	1,574.9	359.8	233.5	6,085.7
More than 7 years.....	23,783.5	4,004.8	651.8	259.8	28,699.8
No fixed maturity .....	11,508.6	—	—	6,688.8	18,197.4
Total.....	¥98,135.7	¥34,235.3	¥3,570.8	¥9,246.7	¥145,188.5

March 31, 2010	Billions of yen				
	Loans, etc.	Bonds	Derivatives	Others	Total
To 1 year .....	¥30,571.7	¥ 8,940.2	¥ 477.9	¥ 329.7	¥ 40,319.4
More than 1 year to 3 years.....	16,227.0	4,768.3	1,059.2	873.5	22,928.1
More than 3 years to 5 years.....	9,914.1	5,114.9	1,117.7	963.9	17,110.5
More than 5 years to 7 years.....	3,896.4	696.2	359.0	243.3	5,194.9
More than 7 years.....	23,616.6	3,007.3	765.3	217.6	27,606.7
No fixed maturity .....	7,071.4	—	—	6,821.6	13,893.0
Total.....	¥91,297.2	¥22,526.9	¥3,779.1	¥9,449.6	¥127,052.7

Notes: 1. The above amounts are exposures after CRM.

2. The above amounts do not include "securitization exposures" and "credit risk-weighted assets under Article 145 of the Notification."

3. "Loans, etc." includes loans, commitments and off-balance sheet assets except derivatives, and "Others" includes "equity exposures" and standardized approach applied funds.

4. "No fixed maturity" includes exposures not classified by residual term.

## 3. Term-End Balance of Exposures Past Due 3 Months or More or Defaulted and Their Breakdown

### (1) By Geographic Region

March 31	Billions of yen	
	2011	2010
Domestic operations (excluding offshore banking accounts) .....	¥2,413.9	¥2,285.0
Overseas operations and offshore banking accounts.....	227.4	220.5
Asia.....	22.0	19.1
North America.....	67.2	101.5
Other regions.....	138.2	99.9
Total.....	¥2,641.3	¥2,505.5

Notes: 1. The above amounts are credits subject to self-assessment, including mainly off-balance sheet credits to obligors categorized as "Substandard Borrowers" or lower under self-assessment.

2. The above amounts include partial direct write-offs (direct reductions).

3. "Domestic operations" comprises the operations of SMFG, its domestic consolidated banking subsidiaries (excluding overseas branches) and other domestic consolidated subsidiaries. "Overseas operations" comprises the operations of the overseas branches of domestic consolidated banking subsidiaries and overseas consolidated subsidiaries, and the term-end balances are calculated based on the obligor's domicile country.

### (2) By Industry

March 31	Billions of yen	
	2011	2010
Domestic operations (excluding offshore banking accounts)		
Manufacturing.....	¥ 273.0	¥ 252.8
Agriculture, forestry, fishery and mining .....	7.9	7.6
Construction.....	147.0	147.0
Transport, information, communications and utilities.....	167.0	124.3
Wholesale and retail .....	317.8	278.9
Financial and insurance.....	19.5	33.0
Real estate, goods rental and leasing .....	738.4	771.5
Services .....	364.3	349.8
Other industries .....	379.0	320.1
Subtotal .....	¥2,413.9	¥2,285.0
Overseas operations and offshore banking accounts		
Financial institutions .....	¥ 39.5	¥ 49.8
C&L companies .....	187.9	170.7
Subtotal .....	¥ 227.4	¥ 220.5
Total.....	¥2,641.3	¥2,505.5

Notes: 1. The above amounts are credits subject to self-assessment, including mainly off-balance sheet credits to obligors categorized as "Substandard Borrowers" or lower under self-assessment.

2. The above amounts include partial direct write-offs (direct reductions).

3. "Domestic operations" comprises the operations of SMFG, its domestic consolidated banking subsidiaries (excluding overseas branches) and other domestic consolidated subsidiaries. "Overseas operations" comprises the operations of the overseas branches of domestic consolidated banking subsidiaries and overseas consolidated subsidiaries.

*Table 34. Specify Record Selection display fields (continued)*

Column	Description																														
Value	<p>One of the following can be specified:</p> <ul style="list-style-type: none"> <li>• Numeric constant</li> </ul> <p>This is possible when the field is numeric type data. A numeric constant can be from 1 to 31 digits long, and can contain the following characters:</p> <ul style="list-style-type: none"> <li>- Digits (0 through 9)</li> <li>- A plus sign (+) or minus sign (-) at the beginning</li> <li>- A period.</li> </ul> <p>Floating point expressions are not allowed, although floating point data is allowed.</p> <p>Examples:</p> <table> <thead> <tr> <th>Correct</th> <th>Incorrect</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>+12.5</td> <td>+12.5.0</td> <td>2 periods are contained.</td> </tr> <tr> <td>-20</td> <td>20-</td> <td>- does not come first</td> </tr> <tr> <td>.00005</td> <td>.0000A5</td> <td>"A" is not numeric</td> </tr> <tr> <td>123456</td> <td>1.23456E+5</td> <td>Floating point expression</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• Character constant like 'ABC'</li> </ul> <p>This is possible when the field is character type data. The maximum for a character length is the same as the length of the <i>Value</i> column. A character constant is simply characters enclosed in apostrophes (for example, 'xxx'). If a character constant contains an apostrophe, it must be entered as two apostrophes. For example, if you want to print records that list the street addresses as Granger's Circle, type the constant as 'Granger's Circle'.</p> <p>Examples:</p> <table> <thead> <tr> <th>Correct</th> <th>Incorrect</th> <th>Reason</th> </tr> </thead> <tbody> <tr> <td>'ABCDEF'</td> <td>ABCDEF</td> <td>No apostrophe, recognized as a field name.</td> </tr> <tr> <td>'abc def'</td> <td>'abc def</td> <td>Last apostrophe is missing.</td> </tr> <tr> <td>'Tom''s bed'</td> <td>'Tom's bed'</td> <td>Double apostrophe is required.</td> </tr> <tr> <td>'123456'</td> <td>123456</td> <td>No apostrophe, recognized as a numeric constant.</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>• A field name in the database file member</li> </ul> <p>Any fields in the input database file member can be specified, but its data type must match with the data type specified in the <i>Field</i> column. For example, if the data type is numeric, you must specify it as numeric data. If it is character data, you must specify it as character data. Comparison of SBCS type and DBCS type is allowed.</p> <p>You can select a field name from the list of field names in the database file by pressing F4.</p> <p>If a field and a value are not of the same length, the Print Format Utility handles the shorter one as if it has the same length as the longer one as follows:</p> <ul style="list-style-type: none"> <li>• 0's are added at the left of numeric values.</li> <li>• SBCS blanks are added at the right of character values.</li> </ul>	Correct	Incorrect	Reason	+12.5	+12.5.0	2 periods are contained.	-20	20-	- does not come first	.00005	.0000A5	"A" is not numeric	123456	1.23456E+5	Floating point expression	Correct	Incorrect	Reason	'ABCDEF'	ABCDEF	No apostrophe, recognized as a field name.	'abc def'	'abc def	Last apostrophe is missing.	'Tom''s bed'	'Tom's bed'	Double apostrophe is required.	'123456'	123456	No apostrophe, recognized as a numeric constant.
Correct	Incorrect	Reason																													
+12.5	+12.5.0	2 periods are contained.																													
-20	20-	- does not come first																													
.00005	.0000A5	"A" is not numeric																													
123456	1.23456E+5	Floating point expression																													
Correct	Incorrect	Reason																													
'ABCDEF'	ABCDEF	No apostrophe, recognized as a field name.																													
'abc def'	'abc def	Last apostrophe is missing.																													
'Tom''s bed'	'Tom's bed'	Double apostrophe is required.																													
'123456'	123456	No apostrophe, recognized as a numeric constant.																													

## NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

### Chart Limits

#### Outline on Sectional of Terminal Area Chart



**LOS ANGELES TERMINAL AREA**  
Pilots are encouraged to use the Los Angeles VFR Terminal Area Chart for flights at or below 10,000'.

#### Outline on Sectional of Inset Chart



**INSET**

If Inset chart is on the same chart as outline:

**INDIANAPOLIS INSET**  
See inset chart for additional detail

#### Outline of Special Chart on Sectional and Terminal Area Chart



**GRAND CANYON CHART**

If inset chart is on a different chart:

**INDIANAPOLIS INSET**  
See inset chart on the St. Louis Sectional for additional information

## CULTURE

### Railroads

Single Track



Double Track



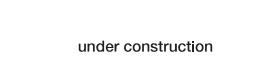
More Than Two Tracks



Electric



Non-operating, Abandoned or Under Construction



### Roads

Dual-Lane Divided Highway Category 1



Primary Category 2

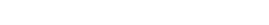


Secondary Category 2



### Trails

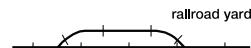
Category 3



Provides symbolization for dismantled railroad when combined with label "dismantled railroad."

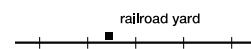
### Railroad Yards

Limiting Track To Scale



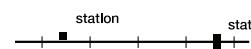
railroad yard

Location Only



railroad yard

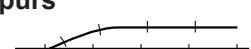
### Railroad Stations



station

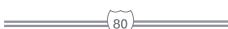
station

### Railroad Sidings and Short Spurs



### Road Markers

Interstate Route No.



80

U.S. Route No.



40

Air Marked Identification Label

[13]

### Road Names

LINCOLN HIGHWAY



### Roads Under Construction



under construction

$d$  (including  $d = 2$ ), and that every solution has the form  $\pm(x_n, y_n)$  where  $x_n + \sqrt{d}y_n = (x_1 + \sqrt{d}y_1)^n$  for some solution  $(x_1, y_1)$  and  $n \in \mathbb{Z}$ .

**Acknowledgment** *Many thanks to Professor Dan Segal, All-Souls College, Oxford, for his advice.*

## REFERENCES

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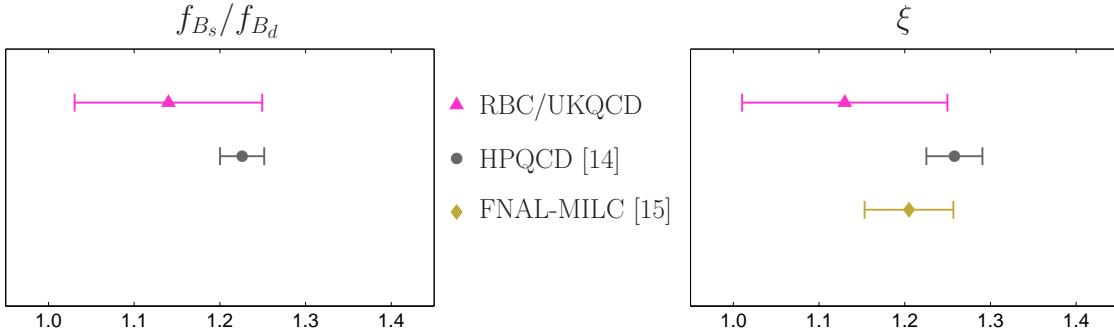


FIG. 9: Comparison of lattice QCD results for  $f_{B_s}/f_{B_d}$  and  $\xi$ . The magenta (triangle) denotes our new values obtained by averaging the APE and HYP results, the gray (circle) the values published by the HPQCD Collaboration [14] and the beige (diamond) the preliminary value presented by the FNAL-MILC Collaboration at Lattice 2009 [15].

Computations for this work were carried out in part on facilities of the USQCD Collaboration, which are funded by the Office of Science of the U.S. Department of Energy. We thank BNL, PPARC, RIKEN, University of Edinburgh, and the U.S. DOE for providing the facilities essential for the completion of this work. The Edinburgh QCDOC system was funded by PPARC JIF grant PPA/J/S/1998/00756 and operated through support from the Universities of Edinburgh, Southampton, and Wales, Swansea and from STFC grant PP/E006965/1.

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The EMGB solution that will be employed as a thin-shell solution with a normal matter [6] is given by (with  $\Lambda = 0$ )

$$f(r) = 1 + \frac{r^2}{4\alpha} \left( 1 - \sqrt{1 + \frac{8\alpha}{r^4} \left( \frac{2M}{\pi} - \frac{Q^2}{3r^2} \right)} \right) \quad (14)$$

with constants,  $M$  =mass and  $Q$  =charge. For a black hole solution the inner ( $r_-$ ) and event horizons ( $r_+ = r_h$ ) are

$$r_{\pm} = \sqrt{\frac{M}{\pi} - \alpha \pm \left[ \left( \frac{M}{\pi} - \alpha \right)^2 - \frac{Q^2}{3} \right]^{1/2}}. \quad (15)$$

By employing the solution (14) we determine the surface energy-momentum on the thin-shell, which will play the major role in the perturbation. We shall address this problem in the next section.

### III. RADIAL, LINEAR PERTURBATION OF THE THIN-SHELL WORMHOLE WITH NORMAL MATTER

In order to study the radial perturbations of the wormhole we take the throat radius as a function of the proper time, i.e.,  $a = a(\tau)$ . Based on the generalized Birkhoff theorem, for  $r > a(\tau)$  the geometry will be given still by (6). For the metric function  $f(r)$  given in (14) one finds the energy density and pressures as [6]

$$\sigma = -S_{\tau}^{\tau} = -\frac{\Delta}{4\pi} \left[ \frac{3}{a} - \frac{4\alpha}{a^3} (\Delta^2 - 3(1 + \dot{a}^2)) \right], \quad (16)$$

$$S_{\theta}^{\theta} = S_{\phi}^{\phi} = S_{\psi}^{\psi} = p = \frac{1}{4\pi} \left[ \frac{2\Delta}{a} + \frac{\ell}{\Delta} - \frac{4\alpha}{a^2} \left( \ell\Delta - \frac{\ell}{\Delta} (1 + \dot{a}^2) - 2\ddot{a}\Delta \right) \right], \quad (17)$$

where  $\ell = \ddot{a} + f'(a)/2$  and  $\Delta = \sqrt{f(a) + \dot{a}^2}$  in which

$$f(a) = 1 + \frac{a^2}{4\alpha} \left( 1 - \sqrt{1 + \frac{8\alpha}{a^4} \left( \frac{2M}{\pi} - \frac{Q^2}{3a^2} \right)} \right). \quad (18)$$

We note that in our notation a 'dot' denotes derivative with respect to the proper time  $\tau$  and a 'prime' implies differentiation with respect to the argument of the function. By a simple substitution one can show that, the conservation equation

$$\frac{d}{d\tau} (\sigma a^3) + p \frac{d}{d\tau} (a^3) = 0. \quad (19)$$



US006503413B2

(12) **United States Patent**  
Uchiyama et al.

(10) **Patent No.:** US 6,503,413 B2  
(45) **Date of Patent:** Jan. 7, 2003

(54) **STABLE, AQUEOUS COMPOSITIONS FOR TREATING SURFACES, ESPECIALLY FABRICS**

(75) Inventors: **Hirotaka Uchiyama**, Symmes Twp, OH (US); **Janese Christine O'Brien Stickney**, Wyoming, OH (US); **Jonathan Robert Cetti**, Fairfield, OH (US); **Ricky Ah-Man Woo**, Hamilton, OH (US); **Dean Larry DuVal**, Lebanon, OH (US); **Gayle Marie Frankenbach**, Cincinnati, OH (US)

(73) Assignee: **The Procter & Gamble Company**, Cincinnati, OH (US)

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/783,509**

(22) Filed: **Feb. 14, 2001**

(65) **Prior Publication Data**

US 2002/0011584 A1 Jan. 31, 2002

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 09/634,379, filed on Aug. 9, 2000.

(60) Provisional application No. 60/240,626, filed on Oct. 16, 2000, and provisional application No. 60/182,381, filed on Feb. 14, 2000.

(51) **Int. Cl.<sup>7</sup>** ..... **D06M 15/643**

(52) **U.S. Cl.** ..... **252/8.91; 252/8.61; 424/76.1; 424/76.2**

(58) **Field of Search** ..... **252/8.61, 8.91; 424/76.1, 76.2**

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*Primary Examiner*—Anthony J. Green

(74) *Attorney, Agent, or Firm*—Jeffrey V. Bamber; Jason J. Camp

(57) **ABSTRACT**

Stable, aqueous compositions for treating surfaces, especially fabrics, comprise: a relatively low molecular weight polyalkyleneoxide polysiloxane surfactant; a buffering agent to maintain the pH of the composition in the range of from about 4 to about 10, preferably from about 5 to about 9.5, and more preferably from about 6 to about 9; and an aqueous carrier. The compositions can further comprise cationic surfactants to further enhance the spreading and/or fabric penetration ability of the compositions. The compositions can further comprise a variety of other optional ingredients. Methods of treating surfaces include methods wherein the compositions are contacted with surfaces, especially fabrics, to reduce malodor impression on the surfaces and/or reduce the appearance of wrinkles in fabrics.

**29 Claims, No Drawings**

Nr.	Funkdienst/ Funkanwendung	Nutzergruppen	Bezugseinheit	Jahresbeitrag je Bezugseinheit (in Euro)	
				TKG	EMVG
1	2	3	4	5	6
4.9		Funkanlage zur Fernsteuerung von Modellen, drahtlose Mikrofonanlage für Hörgeschädigte		kein Beitrag	kein Beitrag
5.	Flugfunkdienst				
5.1		stationäre Bodenfunkstellen, ortsfeste Flugnavigationsfunkstellen	Funkstelle	227,71	187,59
5.2		mobiler Flugfunk (Luftfunkstellen), Flugnavigationsfunk (bewegliche Funkstellen)	Funkstelle	6,02	21,77
5.3		mobiler Flugfunk (sonstige Bodenfunkstellen)	Funkstelle	0,00	0,00
6.	Amateurfunkdienst	Amateurfunk	Inhaber einer Zulassung zur Teilnahme am Amateurfunkdienst	1,49	14,30
7.	Seefunkdienst/ Binnenschiff- fahrtsfunk	Seefunk/Binnenschiff- fahrtsfunk	Funkstelle	9,27	1,96
8.	Nichtnavigatorischer Ortungsfunkdienst				
8.1		Ortungsfunk kleiner Leistung (bis 50 Watt Strahlungsleistung (ERP)), Wetterhilfenfunk	Sendefunkanlage	0,24	7,53
8.2		Ortungsfunk hoher Leistung (größer als 50 Watt Strahlungsleistung (ERP))	Sendefunkanlage	268,65	117,84
9.	Sonstige Funkanwendungen				
9.1		Demonstrationsfunk	Sendefunkanlage	0,00	6,49
9.2		Versuchsfunk	Zuteilung	20,70	0,00
10.	Bahnfunk				
10.1		analoger Eisenbahn-Betriebsfunk (ortsfeste Frequenznutzung)	Sendefunkanlage	34,63	7,32
10.2		analoger Eisenbahn-Betriebsfunk (mobile Frequenznutzung)	Sendefunkanlage	0,35	0,51
10.3		digitaler Eisenbahn-Betriebsfunk in GSM-R-Technik	pro Sektor und Frequenzpaar	69,28	66,41
11.	Bündelfunk				
11.1		Bündelfunk (bis 25 kHz Bandbreite)	pro Sektor und Frequenzpaar je 12,5 kHz Bandbreite oder pro Frequenz im Direct-Mode-Betrieb je 12,5 kHz Bandbreite	56,93	8,76
11.2		Bündelfunk (größer als 25 kHz Bandbreite)	pro Sektor und Frequenzpaar je 12,5 kHz Bandbreite	0,23	0,09
12.	Satellitenfunk				
12.1		koordinierungsrelevante Satellitenfunkverbindung	Frequenz	74,41	26,31

**Convert Page Segment to PFM**

```

Page segment . . . . . : QFCLOGO
Library . . . . . : QGPL

Type choices, press Enter.

Format of data . . . . .          1=Fixed, 2=Continuous
To file . . . . .                 Name, *VM, *MVS
   Library . . . . .               Name, *CURLIB
To member . . . . .                *PAGSEG
Text 'description' . . . . .      Name, *PAGSEG.

Replace . . . . . N              Y=Yes, N=No
Create file . . . . . Y          Y=Yes, N=No
Text 'description' . . . .

F3=Exit   F5=Refresh   F12=Cancel

```

The following table describes the Convert Page Segment to File display.

*Table 80. Convert Page Segment to Files display fields*

Field Name	Description
Page segment	Shows the name of the page segment to be converted to a physical file member.
Library	Shows the name of the library in which the page segment resides.
Format of data	Specifies how data is to be placed in the physical file member.  The possible values are:  1      Each record has one structured field. The remainder of the record is padded with binary 0s. The record length of the file using fixed format is the length of the longest AFPDS structured field in the page segment. If the record length of the existing file is less than the length of the longest structured field, an error message is displayed. If the record length of the existing file is more than the length of the longest structured field, padding with binary 0s occurs. This format is for the VM or the MVS system.  2      The structured fields are filled continuously and folded. Only the last record has padding characters; the padding characters are binary 0s. Any record length of the existing file is allowed. If the file is created by, the record length of the file is 256 bytes. This format is for the OS/2*. This is a required parameter.

# Gesetz über den Bau und die Finanzierung von Bundesfernstraßen durch Private (Fernstraßenbauprivatefinanzierungsgesetz - FStrPrivFinG)

FStrPrivFinG

Ausfertigungsdatum: 30.08.1994

Vollzitat:

"Fernstraßenbauprivatefinanzierungsgesetz in der Fassung der Bekanntmachung vom 6. Januar 2006 (BGBl. I S. 49), das zuletzt durch Artikel 142 des Gesetzes vom 20. November 2019 (BGBl. I S. 1626) geändert worden ist"

**Stand:** Neugefasst durch Bek. v. 6.1.2006 I 49;

Zuletzt geändert durch Art. 142 G v. 20.11.2019 I 1626

Mittelbare Änderung durch Art. 8 Nr. 2 G v. 29.11.2018 I 2237 berücksichtigt

## Fußnote

(+++ Textnachweis ab: 3.9.1994 +++)

## § 1 Bau und Finanzierung durch Private

- (1) Zur Verstärkung von Investitionen in das Bundesfernstraßennetz können Private Aufgaben des Neu- und Ausbaus von Bundesfernstraßen auf der Grundlage einer Mautgebührenfinanzierung wahrnehmen.
- (2) Hierzu kann der Bau, die Erhaltung, der Betrieb und die Finanzierung von Bundesfernstraßen Privaten zur Ausführung übertragen werden.
- (3) Der Private hat die Rechte und Pflichten des Trägers der Straßenbaulast nach den §§ 7a, 16a Abs. 3, §§ 18f, 19 und 19a des Bundesfernstraßengesetzes.
- (4) Hoheitliche Befugnisse gehen auf den Privaten nicht über, soweit dieses Gesetz nichts anderes bestimmt.
- (5) Mautgebühren im Sinne dieses Gesetzes sind öffentlich-rechtliche Gebühren (Gebühren) oder privatrechtliche Entgelte (Entgelte).

## § 2 Mautgebührenerhebung durch Private; Verordnungsermächtigung

- (1) Die Landesregierungen werden ermächtigt, einen Privaten, der sich vertraglich zur Übernahme von Aufgaben nach § 1 Abs. 2 für ein in der Rechtsverordnung nach § 3 Abs. 1 Satz 2 festgelegtes Bundesstraßenprojekt, soweit nicht dem Bund die Verwaltung der Bundesstraße zusteht, verpflichtet, durch Rechtsverordnung mit den Befugnissen, die für den Bau, den Betrieb und die Unterhaltung des nach § 3 Abs. 1 Satz 2 bestimmten Bundesstraßenabschnitts erforderlich sind, insbesondere mit dem Recht zur Erhebung einer Mautgebühr und dem Betreiben der Verkehrszeichen und Verkehrseinrichtungen nach Maßgabe der Absätze 3 bis 5, zu beleihen. Sie können diese Ermächtigung durch Rechtsverordnung auf die oberste Landesstraßenbaubehörde übertragen. Das Bundesministerium für Verkehr und digitale Infrastruktur wird ermächtigt, einen Privaten, der sich vertraglich zur Übernahme von Aufgaben nach § 1 Absatz 2 für ein in der Rechtsverordnung nach § 3 Absatz 1 Satz 2 festgelegtes Bundesfernstraßenprojekt, soweit dem Bund die Verwaltung einer Bundesfernstraße zusteht, verpflichtet, durch Rechtsverordnung ohne Zustimmung des Bundesrates mit den Befugnissen, die für den Bau, den Betrieb und die Unterhaltung des nach § 3 Absatz 1 Satz 2 bestimmten Bundesfernstraßenabschnitts erforderlich sind, insbesondere mit dem Recht zur Erhebung einer Mautgebühr oder dem Betreiben der Verkehrszeichen und Verkehrseinrichtungen nach Maßgabe der Absätze 3 bis 5, zu beleihen. Es kann diese Ermächtigung durch Rechtsverordnung auf das Fernstraßen-Bundesamt übertragen. Die Mautgebühr dient der Refinanzierung der dem Privaten im Zusammenhang mit der Erfüllung der nach § 1 Abs. 2 übernommenen Aufgaben entstehenden Aufwendungen zuzüglich eines projektangemessenen Unternehmergevinns. Die Mautgebühr wird vom Privaten nach Maßgabe der Absätze 2 bis 4 als Gebühr auf der Grundlage einer

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Specialty Foods	This segment includes the Diamond Crystal Brands (acquired in December 2002), Century Foods International (acquired in July 2003), Hormel HealthLabs, and Specialty Products operating segments. This segment consists of the packaging and sale of various sugar and sugar substitute products, salt and pepper products, dessert mixes, gelatin products, and private label canned meats to retail and foodservice customers. This segment also includes the processing, marketing, and sale of nutritional food products and supplements to hospitals, nursing homes, and other marketers of nutritional products.
All Other	This segment includes the Dan's Prize, Inc., Vista International Packaging, Inc. (Vista), and Hormel Foods International operating segments. These businesses produce, market, and sell beef products and food packaging (i.e., casings for dry sausage), and manufacture, market, and sell company products internationally. This segment also includes various miscellaneous corporate sales. Effective June 30, 2004, the company completed the sale of Vista.

### Fiscal Years 2004 and 2003

Fiscal 2004 was an exceptional year for Hormel Foods, with net sales, tonnage volume, and profits all reaching record levels. The improvements in commodity markets that began late in fiscal 2003 continued throughout the year, generating strong operating profit results in the Refrigerated Foods and Jennie-O Turkey Store segments. The first major price increase since fiscal 2000 was implemented in the Grocery Products segment during the second half of the year, which partially offset the impact of higher raw material prices. Additionally, profits were enhanced by the third quarter sale of Vista International Packaging, Inc., the company's food packaging subsidiary.

Overall, the company has been successful with its strategy to create a faster-growing, more diversified product portfolio. Throughout fiscal 2004, the company benefited from its focus on expanding value-added product lines, growth through acquisitions, and new product development. These initiatives have reduced the impact of fluctuating market conditions and have allowed the company to achieve consistently favorable financial results. The company will continue to advance these strategies during fiscal 2005.

The company's accounting cycle resulted in a 14-week fourth quarter and a 53-week year in fiscal 2004 compared with a 13-week fourth quarter and a 52-week year in fiscal 2003. As the company accounts for its operations on a weekly basis, the additional week is fully loaded with expenses, including salaries and depreciation, and does not provide a disproportionate amount of operating profit on a comparable basis.

### Consolidated Results

**Net Earnings:** Net earnings for the fourth quarter of fiscal 2004 were \$69,843, a decrease of 0.7 percent compared to earnings of \$70,365 for the same period last year. Diluted earnings per share were \$.50 and were consistent with the same period last year. Net earnings for the year increased 24.7 percent to \$231,663 from \$185,779 in fiscal 2003. Diluted earnings per share for the same period increased to \$1.65 from \$1.33 in the prior year.

As previously noted, the company experienced infrequently occurring transactions in both fiscal 2004 and 2003. To supplement year-to-year comparisons, we have identified these items as follows: fiscal 2004 net earnings include an \$11,470 after-tax gain (\$.08 per share) on the sale of Vista International Packaging, Inc.; a \$3,963 after-tax gain (\$.03 per share) on the sale of the company's investment in Campofrio Alimentacion, S.A.; and a \$2,672 (\$.02 per share) after-tax charge for early retirement packages related to the company's sales reorganization. Fiscal 2003 net earnings include a \$3,868 after-tax gain (\$.03 per share) resulting from receipt of a vitamin antitrust settlement at Jennie-O Turkey Store (JOTS) and a \$1,131 (\$.01 per share) after-tax write-down of assets and other expenses relating to the closing of a JOTS facility in Marshall, Minnesota.

**Sales:** Net sales for the fourth quarter increased to \$1,345,216 from \$1,169,881 in 2003, an increase of 15.0 percent. Net sales for the twelve months in fiscal 2004 increased 13.8 percent to \$4,779,875 compared to \$4,200,328 last year. Tonnage volume for the fourth quarter increased 9.3 percent to 990,180 from 906,183 last year. Tonnage volume for the year increased 6.2 percent to 3,611,953 from 3,400,265 in the prior year. Net sales and tonnage volume comparisons for the twelve months were positively impacted by the Diamond Crystal Brands and Century Foods International acquisitions, while the fourth quarter results are comparable to the prior year.

Significantly improved demand for protein and increased sales of value-added products resulted in sales dollars increasing more rapidly than tonnage gains for both the quarter and fiscal year, most notably in the Refrigerated Foods and Jennie-O Turkey Store segments. The price increase implemented on June 14, 2004, also resulted in increased net sales for the Grocery Products segment during the fourth quarter. Additionally, international sales of commodity pork items improved fiscal 2004 net sales results and offset the impact of divesting Vista International Packaging, Inc. during the third quarter.

**Gross Profit:** Gross profits were \$318,882 and \$1,121,005 for the quarter and year, respectively, compared to \$295,353 and \$1,013,153 last year, with increases largely due to easing pricing pressures in the Refrigerated Foods and Jennie-O Turkey Store (JOTS) segments. As a percent of net sales, gross profit decreased to 23.7 and 23.5 percent for the current quarter and year, respectively, compared to 25.2 and 24.1 percent for the prior year periods. Higher raw material costs throughout fiscal

**23. Interests in Joint Ventures (continued)**

(c) Santos Ltd and its controlled entities' share of assets and liabilities employed in the joint ventures are included in the statements of financial position under the following classifications:

	<b>Consolidated</b>		<b>Santos Ltd</b>	
	<b>2004</b> \$million	<b>2003</b> \$million	<b>2004</b> \$million	<b>2003</b> \$million
<b>Current assets</b>				
Cash	<b>89.3</b>	72.1	<b>32.2</b>	36.3
Receivables	<b>63.8</b>	26.8	<b>29.3</b>	9.1
Inventories	<b>20.0</b>	27.3	<b>13.5</b>	17.8
<b>Total current assets</b>	<b>173.1</b>	126.2	<b>75.0</b>	63.2
<b>Non-current assets</b>				
Exploration and development expenditure	<b>2,916.9</b>	2,738.9	<b>858.4</b>	866.6
Land and buildings, plant and equipment	<b>1,971.9</b>	1,684.0	<b>645.9</b>	640.9
Other	<b>1.2</b>	1.2	–	–
<b>Total non-current assets</b>	<b>4,890.0</b>	4,424.1	<b>1,504.3</b>	1,507.5
<b>Total assets</b>	<b>5,063.1</b>	4,550.3	<b>1,579.3</b>	1,570.7
<b>Current liabilities</b>				
Payables	<b>237.6</b>	190.5	<b>76.0</b>	60.2
Provisions	<b>3.9</b>	7.6	<b>0.9</b>	1.6
<b>Total current liabilities</b>	<b>241.5</b>	198.1	<b>76.9</b>	61.8
<b>Non-current liabilities</b>				
Provisions	<b>129.4</b>	113.7	<b>43.8</b>	36.0
<b>Total liabilities</b>	<b>370.9</b>	311.8	<b>120.7</b>	97.8
<b>Net investments in joint ventures</b>	<b>4,692.2</b>	4,238.5	<b>1,458.6</b>	1,472.9
(d) The amount of capital expenditure commitments, minimum exploration commitments and contingent liabilities in respect of unincorporated joint ventures are:				
Capital expenditure commitments	<b>266.9</b>	270.9	<b>102.1</b>	84.5
Minimum exploration commitments	<b>172.5</b>	347.3	<b>71.5</b>	107.4
Contingent liabilities	<b>13.4</b>	15.1	<b>6.1</b>	4.8

On June 16, 2004, the Company announced that it had entered into a definitive merger agreement with Mandalay Resort Group ("Mandalay"), a publicly traded company, under which the Company will acquire Mandalay for \$71.00 in cash for each share of common stock of Mandalay. Mandalay owns and operates eleven properties in Nevada, including Mandalay Bay, Luxor, Excalibur, Circus Circus, and Slots-A-Fun in Las Vegas, Circus Circus-Reno in Reno, Colorado Belle and Edgewater in Laughlin, Gold Strike and Nevada Landing in Jean, and Railroad Pass in Henderson. Mandalay also owns and operates Gold Strike, a hotel/casino in Tunica County, Mississippi. In addition, Mandalay owns a 50% interest in Silver Legacy in Reno, a 50% interest in Monte Carlo in Las Vegas, a 50% interest in Grand Victoria, a riverboat in Elgin, Illinois, and a 53.5% interest in MotorCity in Detroit, Michigan. The total consideration is approximately \$8.1 billion, including equity value of approximately \$4.8 billion, convertible debentures with a redemption value of approximately \$574 million, the assumption or repayment of other outstanding Mandalay debt with a fair value of approximately \$2.6 billion as of December 31, 2004, and \$100 million of estimated transaction costs. The transaction is structured as a merger of one of the Company's wholly-owned subsidiaries with and into Mandalay. The transaction will be accounted for as a purchase and is anticipated to close during the first quarter of 2005.

## NOTE 2 — SIGNIFICANT ACCOUNTING POLICIES AND BASIS OF PRESENTATION

**Principles of consolidation.** The consolidated financial statements include the accounts of the Company and its subsidiaries. Investments in unconsolidated affiliates which are 50% or less owned are accounted for under the equity method. All significant intercompany balances and transactions have been eliminated in consolidation. The Company's operations are primarily in one segment – operation of casino resorts. Other operations, and foreign operations, are not material.

**Management's use of estimates.** The consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America. Those principles require the Company's management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Cash and cash equivalents.** Cash and cash equivalents include investments and interest bearing instruments with maturities of three months or less at the date of acquisition. Such investments are carried at cost which approximates market value. Effective December 31, 2004, the Company is recording book overdraft balances resulting from its cash management program as accounts payable, and has reclassified prior period balances to conform to this presentation.

**Accounts receivable and credit risk.** Financial instruments that potentially subject the Company to concentrations of credit risk consist principally of casino accounts receivable. The Company issues markers to approved casino customers following background checks and investigations of creditworthiness. At December 31, 2004, a substantial portion of the Company's receivables were due from customers residing in foreign countries. Business or economic conditions or other significant events in these countries could affect the collectibility of such receivables.

Trade receivables, including casino and hotel receivables, are typically non-interest bearing and are initially recorded at cost. Accounts are written off when management deems the account to be uncollectible. Recoveries of accounts previously written off are recorded when received. An estimated allowance for doubtful accounts is maintained to reduce the Company's receivables to their carrying amount, which approximates fair value. The allowance is estimated based on specific review of customer accounts as well as historical collection experience

fins de la présente disposition, les termes «réutilisation» et «document» ont la signification qui leur est donnée par la décision de la Commission du 12 décembre 2011 relative à la réutilisation des documents de la Commission (2011/833/UE).

Tous les *droits préexistants* font l'objet de licences accordées à l'Union dès la livraison des *résultats* et leur approbation par le pouvoir adjudicateur.

L'octroi à l'Union de licences sur les *droits préexistants* au titre du CC est valable pour le monde entier et pour la durée de la protection des droits de propriété intellectuelle.

Le paiement du prix indiqué dans les *bons de commande* est réputé inclure également toutes les rémunérations dues au contractant au titre de l'octroi à l'Union de licences sur les *droits préexistants*, notamment toutes les formes d'exploitation et d'utilisation des *résultats*.

Lorsque l'*exécution du CC* requiert l'utilisation par le contractant d'un *matériel préexistant* appartenant au pouvoir adjudicateur, ce dernier peut demander au contractant de signer un accord de licence adéquat. Cette utilisation par le contractant n'entraîne aucun transfert de droits au contractant et se limite aux besoins du CC.

### **II.13.3 Droits exclusifs**

L'Union acquiert les droits exclusifs suivants:

- a) reproduction: le droit d'autoriser ou d'interdire la reproduction directe ou indirecte, provisoire ou permanente, des *résultats* par quelque moyen (mécanique, numérique ou autre) et sous quelque forme que ce soit, en tout ou en partie;
- b) communication au public: le droit exclusif d'autoriser ou d'interdire toute présentation, représentation ou communication au public, par fil ou sans fil, y compris la mise à la disposition du public des *résultats* de manière que chacun puisse y avoir accès de l'endroit et au moment qu'il choisit individuellement; ce droit comprend également la communication et la diffusion par câble ou par satellite;
- c) distribution: le droit exclusif d'autoriser ou d'interdire toute forme de distribution au public, par la vente ou autrement, des *résultats* ou des copies de ceux-ci;
- d) location: le droit exclusif d'autoriser ou d'interdire la location ou le prêt des *résultats* ou des copies de ceux-ci;
- e) adaptation: le droit exclusif d'autoriser ou d'interdire toute modification des *résultats*;
- f) traduction: le droit exclusif d'autoriser ou d'interdire la traduction, l'adaptation, l'arrangement ou la création d'œuvres dérivées sur la base des *résultats*, et toute autre altération des *résultats*, sous réserve du respect des droits moraux des auteurs, le cas échéant;
- g) lorsque les *résultats* constituent ou contiennent une base de données: le droit exclusif d'autoriser ou d'interdire l'extraction de tout ou partie substantielle du contenu de la base de données vers un autre support, par quelque moyen et sous quelque forme que ce soit; et le droit exclusif d'autoriser ou d'interdire la réutilisation de tout ou partie substantielle du contenu de la base de données par la distribution de copies, par la location, par des formes de transmission en ligne ou autres;
- h) lorsque les *résultats* constituent ou contiennent un objet brevetable: le droit d'enregistrer cet objet comme brevet et d'exploiter ce brevet au maximum;
- i) lorsque les *résultats* constituent ou contiennent des logos ou un objet qui pourraient être enregistrés comme marque: le droit d'enregistrer ce logo ou cet objet comme marque, de l'exploiter et de l'utiliser;
- j) lorsque les *résultats* constituent ou contiennent un savoir-faire: le droit d'utiliser ce savoir-faire autant que nécessaire pour utiliser au maximum les *résultats* prévus par le CC, et le droit de le mettre à la disposition des contractants ou sous-traitants agissant au nom du pouvoir adjudicateur, sous réserve de la signature d'un engagement de confidentialité adéquat le cas échéant;

and  $\nu$  is given in units of  $E_F/h$ . This prediction requires that atoms transferred to the third spin-state have only weak interactions with the other atoms, so that “final state effects” are negligible [15–22], as is the case for  $^{40}K$  atoms. In Fig. 1b, we plot a measured rf spectrum multiplied by  $2^{3/2}\pi^2\nu^{3/2}$ . The rf spectrum,  $\Gamma(\nu)$ , is normalized so that the integral over the rf lineshape equals 0.5. Empirically, we observe the predicted  $1/\nu^{3/2}$  behavior for  $\nu > \nu_C$ . To obtain the contact we average  $2^{3/2}\pi^2\nu^{3/2}\Gamma(\nu)$  for  $\nu > \nu_C$  where  $\nu_C = 5$  for  $(kFa)^{-1} > -0.5$ , and  $\nu_C = 3$  for  $(kFa)^{-1} < -0.5$ .

The connection between the tail of the rf spectrum and the high- $k$  tail of the momentum distribution can be seen in the Fermi spectral function, which can be probed using photoemission spectroscopy for ultra cold atoms [10]. Recent photoemission spectroscopy results on a strongly interacting Fermi gas [23] revealed a weak, negatively dispersing feature at high  $k$  that persists to temperatures well above  $T_F$ . This feature was attributed to the effect of interactions, or the contact, consistent with a recent prediction that the  $1/k^4$  tail in  $n(k)$  should correspond to a high- $k$  part of the spectral function that disperses as  $-k^2$  [24]. Atom photoemission spectroscopy, which is based upon momentum-resolved rf spectroscopy, also provides a method for measuring  $n(k)$ . By integrating over the energy axis, or equivalently, summing data taken for different rf frequencies, we obtain  $n(k)$ . This alternative method for measuring  $n(k)$  yields results similar to the ballistic expansion technique, but avoids the issue of magnetic-field ramp rates.

In Fig. 2 we show the measured contact for different values of the dimensionless interaction strength,  $1/kFa$ . Here, the contact is extracted using the three different techniques described above to probe two distinct microscopic quantities, namely the momentum distribution and the rf lineshape. We find that the amplitude of the  $1/k^4$  tail of  $n(k)$  and the coefficient of the  $1/\nu^{3/2}$  tail of the rf spectra yield consistent values for  $C$ . The solid line is a prediction for the contact that was reported in Fig. 1 of Ref. [5]. This prediction consists of the BCS limit, interpolation of Monte Carlo data near unitarity, and the BEC limit for a trapped gas at zero temperature and uses a local density approximation.

Remarkably, the Tan relations predict that the contact, as revealed in probes of the microscopic behavior of the gas, is directly connected to the thermodynamics of the gas. To test the Tan relations, we measure the potential energy and release energy of the cloud. The total energy of the trapped gas divided by the number of particles,  $E$ , is the sum of three contributions, the kinetic energy  $T$ , the external potential energy  $V$ , and the interaction

Following is an example of shading.

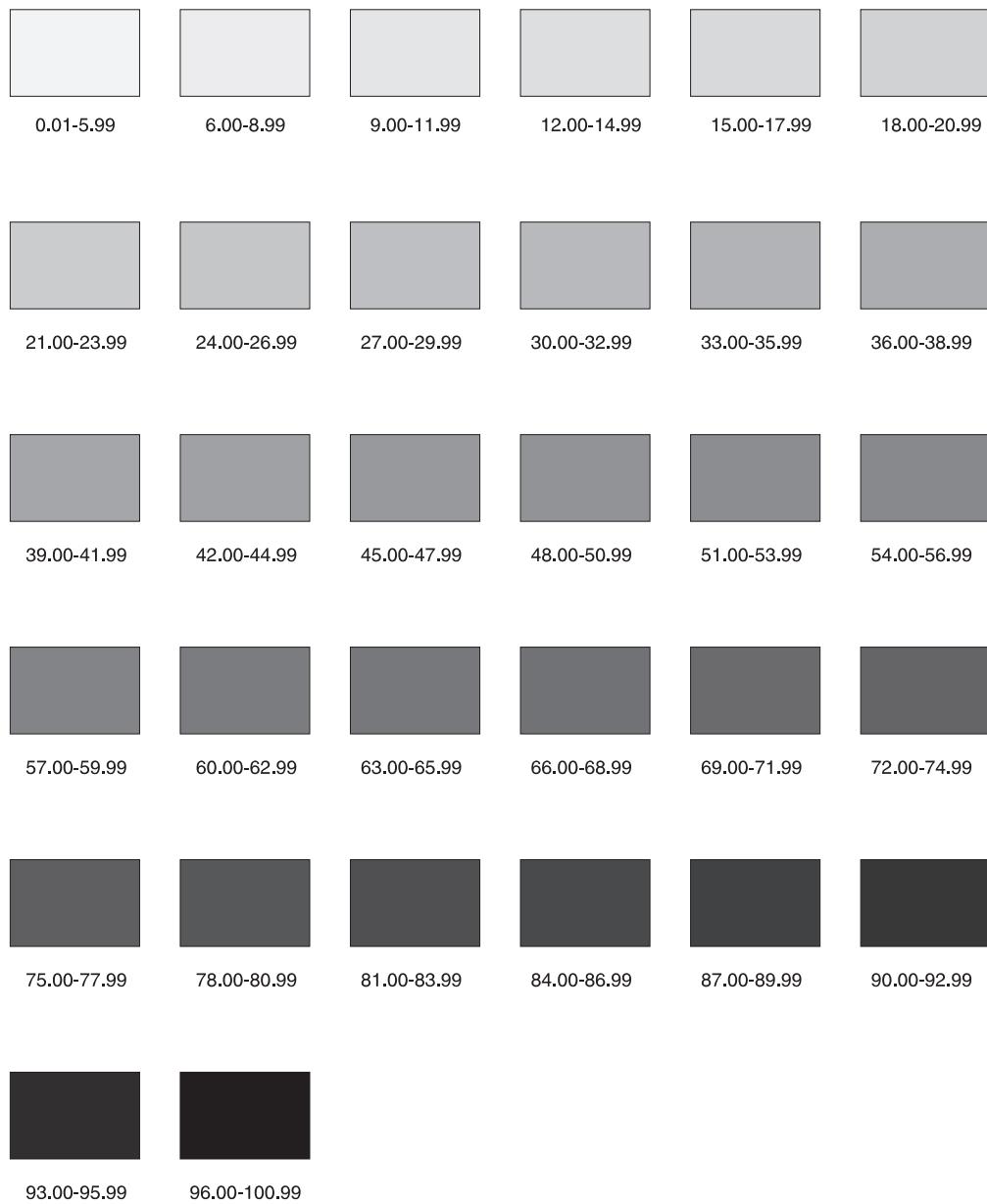


Figure 49. Shading patterns

When you specify the following choice for the *Shading type* prompt, the percentage ranges as shown are designated:

Shade type	Value (%)
*LIGHT	24.00 - 26.99
*MEDIUM	48.00 - 50.99
*DARK	72.00 - 74.99

through responsive pricing, while the Grocery Products segment suffers because raw material costs are higher and price adjustments are infrequent. When protein markets weaken, the Grocery Products segment becomes more profitable, while the protein business margins soften. In the end, this balance within our business model helped deliver record profitability in fiscal 2004.

We continue to look for ways to reduce our commodity exposure. We have aggressively converted our hog contracts from a grain-based to a meat-value formula. This limits our exposure to the grain markets for the procurement of live hogs and better aligns the value of the raw material with market conditions. Over the long term, this will support steadier financial performance in the face of grain price fluctuations.

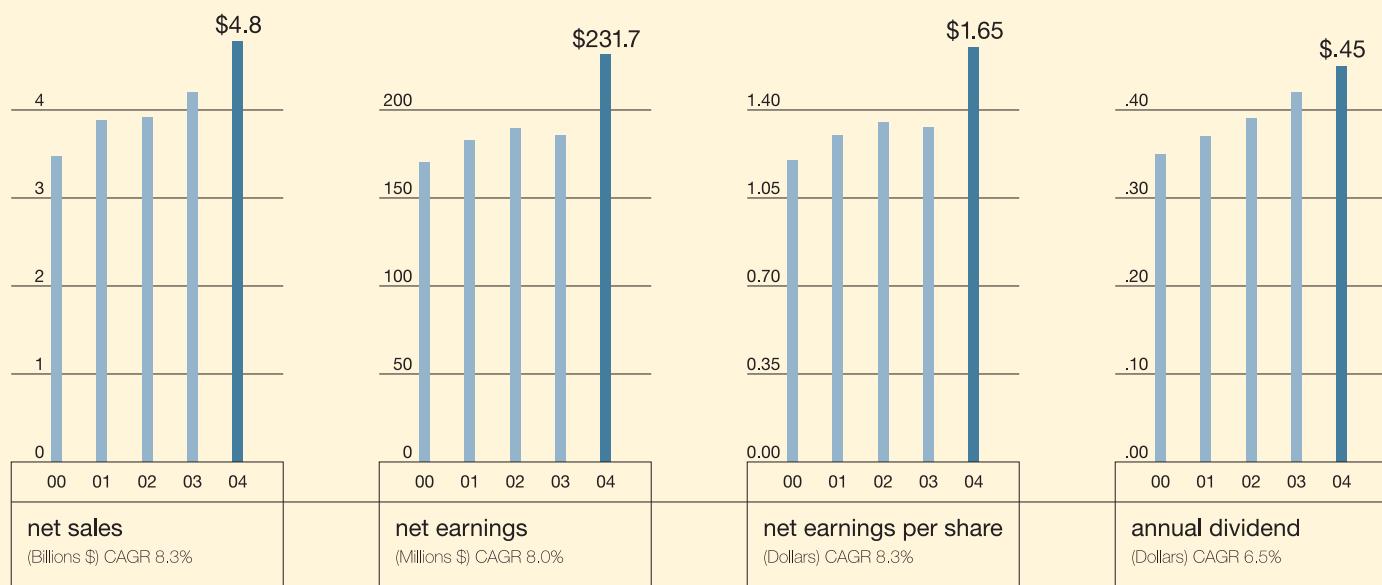
## areas of attention

**innovate more** Innovation is a top priority for us because it creates competitive advantage and builds brand equity. Fiscal 2004 was a fertile period for new ideas in every aspect of our business. We installed high-volume, high-pressure food processing systems to explore new horizons in food safety. Beginning mid-year, *Hormel* chili varieties were first in their

product category to offer Tetra Recart carton packaging – an innovation that provides consumers with a more convenient package and adds excitement to a long established category. Other new convenience product launches include SPAM Singles and Jennie-O Turkey Store Oven Ready Turkey, a fool-proof, whole frozen turkey that's pre-seasoned, ready to go directly from freezer to oven, and is ready to eat in about three and one-half hours. Less dramatic packaging improvements have significantly boosted sales of our *Hormel* microwave meals by revising packaging to draw attention to the convenient bowl rather than the box.

To support continued innovation throughout the company, we made significant investments in new and expanded R&D facilities in 2004. Jennie-O Turkey Store, Inc. opened a new R&D facility and we expanded the R&D facility at our corporate campus. Our total R&D spending was up 21 percent in 2004 compared to fiscal 2003.

**expand high-potential product portfolios** As growth prospects accelerate for our Foodservice and ethnic foods businesses, we are expanding our portfolio of products in both sectors. Our Foodservice business offers a growing selection of branded products, including the highly popular *café h* family



so that the uniform, Lorentz, solution for the LF is reached at  $\delta = \delta_{\text{LL}}^\perp$ , where  $D_{2\perp}^{\text{NNA}}(\mathbf{q} = \mathbf{0}) = 1$ . The second term in the r.h.s. of Eq. (35) is independent of the orientation of  $\mathbf{q}$ , which means that no anisotropy caused by the lattice structure is present in the long-wavelength limit. We may thus conclude that, compared to the “ $\parallel$ ” case, the locsitons in the “ $\perp$ ” configuration are more reminiscent of the locsitons in 1D arrays of resonant atoms considered in [1, 2]. There is still no complete analogy here, as, e.g., the second term in the r.h.s. of Eq. (35) differs by a factor of  $1/2$  from the 1D result [2]. Moreover, dispersion relation (34) does become anisotropic for larger  $q$ , closer to the boundaries of the first Brillouin zone. This anisotropy, however, is by far less pronounced than that in the “ $\parallel$ ” case.

It is instructive to also obtain the dispersion relation in the NRA. By replacing the summation in Eq. (34) with an integration over the “near ring”, following the procedure outlined in Sec. III A, we get

$$1 - \frac{3Q}{2\pi} \int_0^\pi \cos[q \cos(\theta - \psi)] d\theta = 0. \quad (36)$$

The resulting dispersion relation turns out to be independent of the orientation of  $\mathbf{q}$ :

$$D_{2\perp}^{\text{NRA}}(\mathbf{q}) \equiv J_0(q) = \frac{\delta + i}{\delta_{\text{LL}}^\perp}, \quad (37)$$

which is not surprising given the NRA applicability in the long-wavelength limit.

While it might be somewhat harder to create a uniform incident field polarized normally to a 2D lattice, the resulting locsitons could be much easier to control because of the small anisotropy of the interatomic interactions in the “ $\perp$ ” geometry, compared to the “ $\parallel$ ” geometry. For example, defects in a 2D lattice can support *localized* locsitons, not unlike the *evanescent* 1D locsitons discussed in [2]. Compared to the complex locsiton patterns emerging in the “ $\parallel$ ” geometry [cf. Fig. 4] these localized locsitons are more likely to form well-organized strata-like patterns in the “ $\perp$ ” geometry.

Fig. 6 shows concentric dipole strata that are formed around a circular hole made by removing a few tens of atoms from a triangular lattice. The locsiton “attached” to the defect “decays” as the distance to the hole boundary increases, which is mostly a “diffraction” effect, although some contribution from the imaginary part of  $\mathbf{q}$  (like in evanescent 1D locsitons) is also present. In performing the numerical simulations for the plot, we made sure that the locsitons attached to the outside boundaries of the lattice patch (lying far outside the plotted region) do not interfere with the locsiton localized at the defect.

TABLE V: Lorentzian-fit parameters for the low-energy component of ISGDR strength distributions in the Sn isotopes, as extracted from MDA. The results from TAMU work, where available, are provided for comparison [19, 21].

Target	$E_{LE-ISGDR}$ (MeV)	$\Gamma$ (MeV)	Reference
$^{112}\text{Sn}$	$15.4 \pm 0.1$	$4.9 \pm 0.5$	This work
	$14.92^{+0.15}_{-0.14}$	$8.82^{+0.26}_{-0.29}$	TAMU
$^{114}\text{Sn}$	$15.0 \pm 0.1$	$5.6 \pm 0.5$	This work
$^{116}\text{Sn}$	$14.9 \pm 0.1$	$5.9 \pm 0.5$	This work
	$14.38 \pm 0.25$	$5.84 \pm 0.30$	TAMU
$^{118}\text{Sn}$	$14.8 \pm 0.1$	$6.1 \pm 0.3$	This work
$^{120}\text{Sn}$	$14.7 \pm 0.1$	$5.9 \pm 0.3$	This work
$^{122}\text{Sn}$	$14.4 \pm 0.1$	$6.7 \pm 0.3$	This work
$^{124}\text{Sn}$	$14.3 \pm 0.1$	$6.6 \pm 0.3$	This work
	$13.31^{+0.15}_{-0.15}$	$6.60^{+0.15}_{-0.13}$	TAMU

with neutron excess predicted by this hybrid model might be unrealistic. They also suggest that the failure of the FSUGold to reproduce the ISGMR energies might be due to missing physics unrelated to the incompressibility of neutron-rich nuclear matter; as an example of such missing physics, they mention the superfluid character of the Sn isotopes resulting from their open-shell structure.

Calculations have also become available recently from the RMF approach with the DD-ME2 interaction [75], and these reproduce the centroids of the ISGMR in the Sn isotopes rather well [68]. It is also seen that the DD-ME2 interaction falls within the constraints imposed by the experimental  $K_\infty$  and  $K_\tau$  values (see discussion below). Some concern has been expressed, however, that this agreement of the centroid energies might be just a coincidence since the ISGMR strength distributions for the Sn isotopes from this work appear to be not significantly different from those obtained from, for example, the FSUGold [76].

In calculations using the T5 Skyrme interaction within the quasiparticle time blocking approximation (QTBA) approach, Tselyaev *et al.* [69] have obtained the ISGMR strength distributions in all the Sn isotopes in good agreement with the experimental data, including the resonance widths. However, T5 has the associated  $K_\infty$  value of only 202 MeV, which is

## 26. Changes in Net Assets

(1) Type and number of shares issued and treasury shares are as follows:

Year ended March 31, 2011	Number of shares		
	March 31, 2010	Increase	Decrease
<b>Shares issued</b>			
Common stock.....	1,414,055,625	—	—
Preferred stock (1st series Type 6) .....	70,001	—	—
<b>Total</b> .....	<b>1,414,125,626</b>	<b>—</b>	<b>—</b>
<b>Treasury shares</b>			
Common stock.....	17,070,100	15,516,991*	5,177*
<b>Total</b> .....	<b>17,070,100</b>	<b>15,516,991</b>	<b>5,177</b>
<b>32,581,914</b>			

\* Increase in number of treasury common shares issued:

- 37,591 shares due to purchase of fractional shares
- 15,479,400 shares due to acquisition of SMFG shares by SMFG Card & Credit, Inc., a wholly-owned subsidiary of SMFG, in connection with making Cedyna Financial Corporation a wholly-owned subsidiary of SMFG Card & Credit through the share exchange

Decrease in number of treasury common shares issued:

- 5,177 shares due to sale of fractional shares

Year ended March 31, 2010	Number of shares		
	March 31, 2009	Increase	Decrease
<b>Shares issued</b>			
Common stock.....	789,080,477	624,975,148* <sup>1</sup>	—
Preferred stock (1st series Type 4) .....	4,175	—	4,175* <sup>2</sup>
Preferred stock (2nd series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (3rd series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (4th series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (9th series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (10th series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (11th series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (12th series Type 4).....	4,175	—	4,175* <sup>2</sup>
Preferred stock (1st series Type 6) .....	70,001	—	—
<b>Total</b> .....	<b>789,183,878</b>	<b>624,975,148</b>	<b>33,400</b>
<b>1,414,125,626</b>			
<b>Treasury shares</b>			
Common stock.....	17,028,466	54,672* <sup>3</sup>	13,038* <sup>3</sup>
Preferred stock (1st series Type 4) .....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (2nd series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (3rd series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (4th series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (9th series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (10th series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (11th series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
Preferred stock (12th series Type 4).....	—	4,175* <sup>2</sup>	4,175* <sup>2</sup>
<b>Total</b> .....	<b>17,028,466</b>	<b>88,072</b>	<b>46,438</b>
<b>17,070,100</b>			

\*<sup>1</sup> Increase in number of common shares issued:

- 559,700,000 shares due to issuance of new shares by way of public offering on June 22, 2009 and January 27, 2010
- 28,931,300 shares due to issuance of new shares by way of third-party allotment on July 27, 2009 and February 10, 2010
- 36,343,848 shares due to exercising of rights to request acquisition of common shares with respect to preferred stock (1st through 4th and 9th through 12th series Type 4) on January 28, 2010

\*<sup>2</sup> Increase in number of treasury preferred shares (Type 4):

- 4,175 shares due to acquisition of own shares on January 28, 2010 as a result of exercising of rights to request acquisition of common shares

Decrease in number of shares issued and treasury shares of preferred stock (1st through 4th and 9th through 12th series Type 4):

- 4,175 shares due to retirement of treasury shares on February 8, 2010

\*<sup>3</sup> Increase in number of treasury common shares:

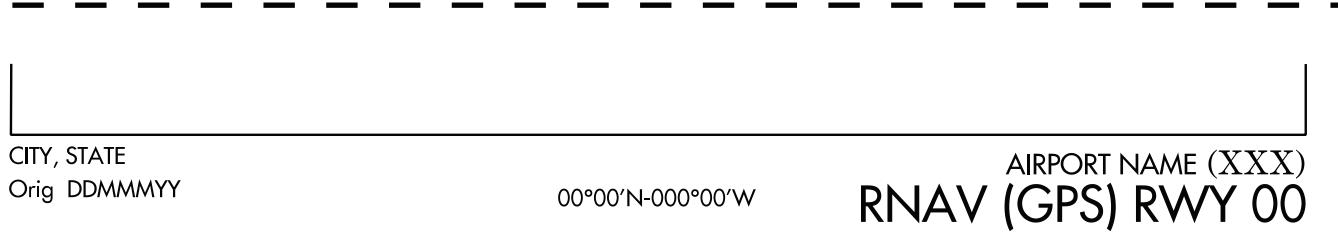
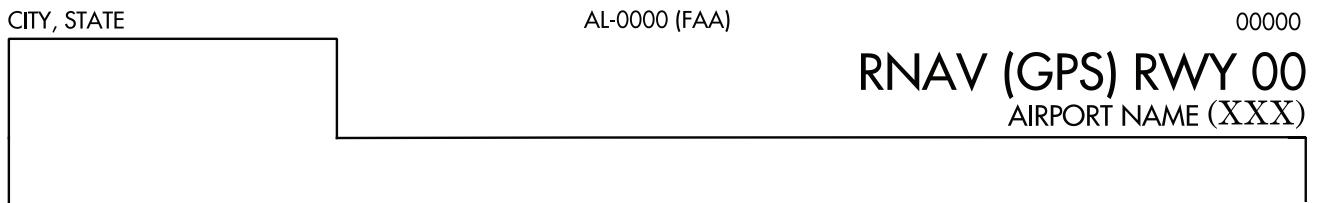
- 54,672 shares due to purchase of fractional shares

Decrease in number of treasury common shares:

- 12,990 shares due to sale of fractional shares

- 48 shares due to sale by affiliates accounted for by the equity method

## Margin Identification Information



The margin identification at the top, bottom, and sides of the chart provides information about the airport location, procedure identification, and chart currency. The charts are organized by city first, then airport name and state, with the exception of military charts, which are organized by airport name. Going from the top of the chart, reading from left to right, and going down the chart, Margin Identification Information is organized in the following way.

The hash marks along the top and bottom borders of military Instrument Approach Charts indicate that the procedure was designed using High Altitude criteria contained in FAA Order 8260.3. These procedures are designed to support high performance military aircraft operations and are not intended for civilian use.





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At December 31, 2004, we had \$93 million of deferred tax assets and \$1.9 billion of deferred tax liabilities. Except for certain New Jersey state net operating losses and certain other New Jersey state deferred tax assets, we believe that it is more likely than not that our deferred tax assets are fully realizable because of the future reversal of existing taxable temporary differences and future projected taxable income. The valuation allowance at December 31, 2004 related to the New Jersey deferred tax assets was \$6 million.

Our income tax returns are subject to examination by the Internal Revenue Service ("IRS") and other tax authorities. While positions taken in tax returns are sometimes subject to uncertainty in the tax laws, we do not take such positions unless we have "substantial authority" to do so under the Internal Revenue Code and applicable regulations. We may take positions on our tax returns based on substantial authority that are not ultimately accepted by the IRS.

We assess such potential unfavorable outcomes based on the criteria of Statement of Financial Accounting Standards No. 5, "Accounting for Contingencies" ("SFAS 5"). We establish a tax reserve if an unfavorable outcome is probable and the amount of the unfavorable outcome can be reasonably estimated. We assess the potential outcomes of tax uncertainties on a quarterly basis. In determining whether the probable criterion of SFAS 5 is met, we presume that the taxing authority will focus on the exposure and we assess the probable outcome of a particular issue based upon the relevant legal and technical merits. We also apply our judgment regarding the potential actions by the tax authorities and resolution through the settlement process.

We maintain required tax reserves until such time as the underlying issue is resolved. When actual results differ from reserve estimates, we adjust the income tax provision and our tax reserves in the period resolved. For tax years that are examined by taxing authorities, we adjust tax reserves in the year the tax examinations are settled. For tax years that are not examined by taxing authorities, we adjust tax reserves in the year that the statute of limitations expires. Our estimate of the

potential outcome for any uncertain tax issue is highly judgmental, and we believe we have adequately provided for any reasonable and foreseeable outcomes related to uncertain tax matters.

In December 2002, we settled the IRS audit of the Company's 1995 and 1996 tax returns, which did not result in a material impact on our results of operations or financial position. During 2003, we filed amended returns for tax years subsequent to 1996 to reflect the impact of the IRS audits of the 1993 through 1996 tax years on those subsequent years. In the fourth quarter of 2003, the statutes of limitations expired for the 1997 through 1999 tax years, resulting in a reduction of our tax reserves of \$13 million and a corresponding reduction in our provision for income taxes. In the third quarter of 2004, the statute of limitations expired for our 2000 tax return, resulting in a reduction of our tax reserves of \$6 million and a corresponding reduction in our provision for income taxes. Subsequent to December 31, 2004, we received notice that the IRS will audit our 2001 and 2002 tax returns, and the tax returns for years after 2002 are subject to possible future examination.

We classify reserves for tax uncertainties within "other accrued liabilities" in the accompanying consolidated balance sheets, separate from any related income tax payable or deferred income taxes. Reserve amounts may relate to the deductibility of an item, as well as potential interest associated with those items.

A portion of our tax reserves was assumed in the Mirage Acquisition. The IRS audit of the tax returns of Mirage through the merger date was settled in August 2003, resulting in a payment to the IRS of \$45 million, including interest. These matters had been previously reserved for, so the settlement had no impact on our income tax provision or our results of operations. Any future adjustments to the acquired Mirage tax reserves will be recorded as an adjustment to goodwill.



# I am pleased to report that in 2011 MSA achieved its highest annual net sales in our 97-year history.

More customers, in more countries around the world, are placing their trust in the MSA brand. In 2011, this resulted in customers choosing to purchase nearly \$1.2 billion in MSA products.

The phrase "choosing to purchase" is significant, because our 2011 sales actually represent an aggregation of thousands of individual decisions – single instances of safety professionals carefully weighing their options and purposefully selecting MSA to protect them and their co-workers on the job. Each decision showed confidence that the MSA offering was the one that would help keep their people safe, whether they be oil workers on an offshore rig, firefighters bravely entering a burning building, construction professionals working atop scaffolding hundreds of feet above the earth, miners laboring hundreds of feet below it, or any of the other millions of men and women around the globe who depend on MSA to protect them each and every day.

There is no doubt that, in addition to the skill and dedication of our 5,300 associates worldwide, part of what helped drive each of these customers to make their decision was our company's relentless pursuit of our Corporate Strategy. And a key part of this strategy is to focus on our core strengths as we advance our mission to protect workers around the world.

While every product we produce provides value to our company and our customers, in 2011 we placed a special focus on investing in and further improving the development, manufacturing, marketing, and distribution of five Core Product families: Supplied-Air Respirators, Industrial Head Protection, Portable Gas Detection Instruments and Sensors, Fixed Gas and Flame Detection Systems, and Fall Protection products. Our cross-functional, cross-geographic teams worked tirelessly to make these products more durable, more effective, and engineered with innovative features that not only delight our customers, but help them reduce total cost of ownership, thereby providing even greater value to those who choose MSA.