





Omega Sensors Incorporated

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Table of Contents

I. Executive Summary	2
Keys to Omega's success	3
II. Product and Application	5
One Technology – Many Products	7
Omega's AcXel Benefits to Seismic Imaging	7
Progress to Date	7
Strategic Partner	8
Additional Target Markets	9
III. Management Team	10
IV. Market Analysis	12
Seismic Imaging	12
Industrial Monitoring	13
Navigation	14
V. Marketing Strategy	15
Product	15
Price	15
Promotion	15
Market Penetration	16
Market Share	17
VI. Operations	18
Product Development and Manufacturing	18
Testing Facility	18
New Product Designs	19
Future R&D	19
VII. Financial Highlights	20
Sales	20
Expenses	20
Capital Structure	21
Exit Strategy	21
Appendix A: Technology TIP Sheet	22
Appendix B: Contact Signature Page	23
Appendix C: Dytran Letter of Intent	24
Appendix D: Licensed Patent List	25
Appendix E: Dr. Richard Water's (CTO) Publications and Recognition	26
Appendix F: Five Year Income Statement	27
Appendix G: Five Year Balance Sheet	28
Appendix H: Statement of Cash Flows	29



I. Executive Summary:

The oil industry is rapidly approaching a crisis of rising costs and increased demand that threatens the world economy. New oil deposits are becoming smaller with the average deposit

size being less than half the size of those discovered prior to 1960. Yet, world oil demand is expected to grow 37% by 2030. In 2006, U.S. Oil companies lost nearly \$12 billion due to unsuccessful drilling attempts that ended with dry wells¹.

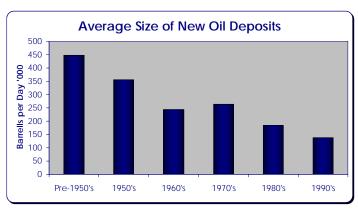


Figure 1: Average Size of New Oil Deposits

Seismic imaging is the technique used to explore for oil deposits and is analogous to an ultrasound of the earth. Omega Sensors Inc.'s (Omega) will reduce the number of dry wells by improving seismic imaging using its patented market disruptive accelerometer technology.

Accelerometers are sensors used to measure acceleration and vibration. By attaching an accelerometer to a system, the movement and acceleration of that system are measured.

Applications range from an airbag sensor where the deceleration of the car due to impact is measured and deploys the airbag, to seismometers used to measure earthquakes. They are a subset of the \$4.34 billion Acceleration, Vibration, and Velocity (AVV) sensor market projected to grow 12% annually². Omega will be an OEM supplier of accelerometers and sell same accelerometer design used by seismic imaging into the industrial monitoring market and a modified version to the navigation market.

AcXel = 9

¹ Oil Report from DOE

² 2010 Market Forecast Data from Frost & Sullivan



Traditional accelerometers make their measurements electrically, but Omega's AcXel uses a proprietary optical technique. The result is **World Record** sensitivity that is **10,000 times more sensitive** than the electrical techniques and was named one of the "**World's Best Technologies of 2005**" by the World's Best Technology Showcase. Omega's AcXel technology is protected



Figure 2: Omega's AcXel Accelerometer

by six patents, and two more pending – all exclusively licensed to Omega. The current state-of-the-art accelerometer, the Honeywell QA-3000 is priced at over \$17,000 each. With manufacturing costs less than \$37 per accelerometer Omega is positioned for rapid growth and market disruption.

Keys to Omega's success:

- AcXel technology inventor, Richard Waters, is a co-founder and the CTO for Omega.
- Over \$6 million of government funds invested into product development.
- World record performance.
- Technology is protected by six patents and two pending.
- Multiple applications for the same sensor.

Omega's AcXel will be directed toward three segments of the \$4.34 billion AVV market:

• Oil Exploration (seismic imaging): Accelerometers were once touted to replace traditional seismic imaging technologies (geophones) in this \$313 million market due to their performance advantages. However, with a price tag more than ten times higher than geophones, accelerometers make up less than 10% of this market segment. Omega's AcXel will be the first and only technology to bridge the gab between cost and performance offering even better performance than existing accelerometers at geophone prices.



accelerometer developed for seismic imaging will address this \$374 million market without further product development. Omega has a signed letter of intent to distribute its product world wide with Dytran Instruments, Inc.

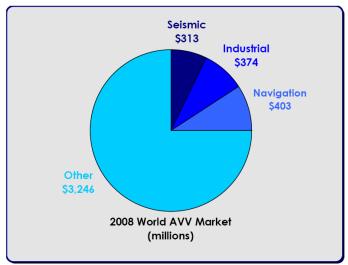


Figure 3: World AVV Market³

Navigation: Applications for guidance systems require the highest performing
accelerometers available. Omega will partner with leading navigation system companies to
develop the first low cost navigation accelerometer and penetrate the \$403 million market.

Omega will be an OEM supplier selling its sensors to equipment manufacturers within the AVV market. Omega will focus its marketing efforts on creating and maintaining strategic partnerships with distributors and sensor equipment manufacturers. Omega will focus on high volume customers and use distributors to serve low volume markets.

Omega is seeking \$4 million of investor capital. With this capital, management will bring the AcXel to market during year two, reach profitability the same year, and estimates fifth year revenues of \$195 million and net income of \$59 million. From these sale generated revenues, Omega will build a \$500 thousand dollar testing and calibration facility, develop an accelerometer for navigation systems, and ramp up staffing. Investors stand to earn over 81X cash on cash and a 141% internal rate of return.

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³ Frost & Sullivan: "World Sensors in Acceleration, Vibration, and Velocity"



II. Product & Application:

Innovative technology often finds a utility far different than the one for which it was originally created. Such is the case of Omega's AcXel accelerometer technology. Originally developed by the Navy for military navigation purposes, the AcXel has found itself poised to become the next revolution in oil discovery.

The average size of new oil deposits is declining according to data from the U.S. Department of Energy. New oil discoveries are less than half the size of deposits

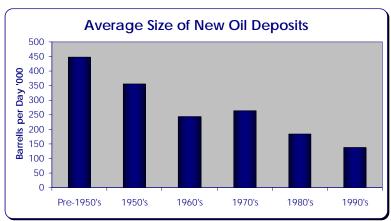


Figure 4: Average Size of Oil Deposit Discoveries

discovered prior to 1960. In addition, the percentage of failed wells has risen 20% from 2005 to 2006. Oil is becoming harder to find. Even more alarming is that about 80% of the oil produced today flows from fields that were discovered before 1975 and world-wide oil demand is expected to grow by 37% by 2030. The oil industry is rapidly approaching a crisis of rising costs and increased demand that threatens the world economy. Nearly \$12 billion in 2006 were lost on dry wells in the U.S. alone – up from less than \$4 billion in 1990. Seismic imaging, the technique used to look for oil successfully reduced the percentage of exploratory dry wells from 70% in 1980 to the current 40-50%. Every 5% further improvement would save the U.S. oil industry an additional \$600 million per year⁴.

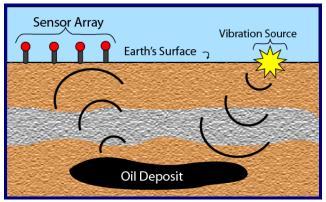
AcXel

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⁴ Oil Statistics from the U.S. Department of Energy



Seismic imaging is essentially an ultrasound of the earth. Arrays of 5,000 to 10,000 sensors are used to measure vibrations of the earth that are then converted to an image of what is under the



measurement sensor. All vibration
measurement sensors operate on a similar
principle. Inside each sensor is a mass that
is suspended by a spring (Figure 6). As the
sensor is vibrated the mass inside the sensor

surface. Each seismic sensor is a vibration

Figure 5: Seismic Imaging

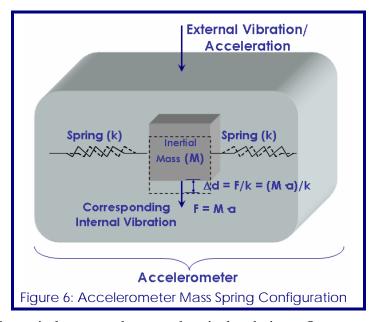
also vibrates. By measuring the movement of the mass inside, the outside vibrating force is also measured. Traditional seismic imaging sensors make their measurements electrically, but Omega's AcXel uses a proprietary

method to measure vibrations optically.

The result is a measurement that is

10,000 times more sensitive than the electrical techniques.

Traditional accelerometers have pushed their limit to the point that the on-board electronics must be capable of counting individual electrons and still cannot meet



the desired performance. By employing the entirely new and patented optical technique, Omega is able to increase its accelerometer performance without the problem of trying to count individual electrons. The technology behind AcXel was invented by Dr. Richard Waters (Cofounder) while working at the Space and Naval Warfare Systems Center's Research Laboratory



(SPAWAR). The military spent six years and over \$6 million to develop this technology.

SPAWAR has exclusively licensed all six and two pending patents protecting the technology to Omega.

One Technology – Many Products: While many applications use accelerometers, the performance requirements of each vary. An accelerometer is a combination of the sensing element (Figure 6) and control electronics. Omega can control the performance characteristics of its accelerometers through simple alterations of the sensing element design, such as decreasing the size of the inertial mass (Figure 6), or the control electronics, such as increasing the on board processing power. Through these alterations of the design, Omega can build a family of accelerometers to address many different applications.

Omega's AcXel Benefits to Seismic Imaging:

<u> </u>	
Key Benefits	Key Features
Fewer Dry Wells	10,000 times sensitivity improvement allows for higher resolution images.
Increased Deposit Discoveries	Omega's AcXel is the only Seismic Imaging sensor capable of low frequency measurements. These measurements can locate oil deposits that were previously undetectable.
Higher Oil Extraction Percentage	Improved Imaging capability allows for more strategic drilling giving better access to oil deposits.
Reduced Survey Time	Omega's AcXel measures gravity (most sensors do not), therefore careful leveling of each sensor is not required as is with traditional sensors.
Improved Ease of Use	Current state-of-the-art seismic imaging sensors have to be recalibrated every 10 seconds in the field. AcXel will require recalibration every 10 minutes.
Affordability	Omega's AcXel offers state-of-the art performance for less than a tenth of current high performance sensor prices.

Table 1: Seismic Imaging Benefits

Progress to Date:

Development Work

- √ \$35,000 Market Study grant from the Center for Commercialization of Advanced

 Technology (CCAT)
- ✓ \$75,000 CCAT Grant for prototype development.

IP and Expertise



- ✓ Exclusive License of all six patents plus two pending protecting the technology.
- ✓ Inventor, Richard Waters, is part of the Team.
- ✓ R&D Partnership with the SPAWAR.

Existing Customers

- ✓ \$20,000 Project Analysis Plan for Fairfield Industries.
- ✓ \$5,000 Consulting work for Jan Medical.
- ✓ Two signed contracts for consulting work (DRC and Geodetics, Inc.).

Recognition and Achievements

- ✓ "One of the Best Technologies of 2005" by the World's Best Technology Showcase.
- ✓ World Record Sensitivity: Smallest Displacement Measured.

OEM Supplier: Omega will be an OEM supplier of accelerometers for multiple markets. An accelerometer is typically a subcomponent of a larger system. For seismic imaging, Omega will sell its accelerometer to seismic imaging equipment manufacturers (see Figure 7). These manufactures will build the seismic imaging sensing nodes, which are part of an array of five to ten thousand sensing nodes and include data acquisition boxes and software.

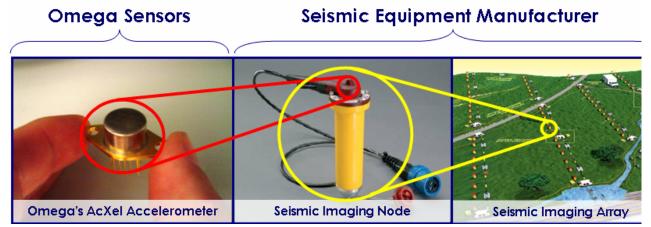


Figure 7: Omega will supply the AcXel accelerometer only



This same OEM supplier relationship exists for all the accelerometer markets. The advantage for Omega is that the same AcXel technology offers benefits to multiple markets that are otherwise unrelated.

Additional Target Markets:

- Industrial Monitoring: Accelerometers in this market are used to measure vibrations and
 have similar, but less stringent performance requirements as seismic imaging accelerometers.
 Omega will address this market with the same sensor developed for seismic imaging.
- <u>Navigation Accelerometers</u>: Navigation grade accelerometers are the highest performing and highest priced accelerometers (some models over \$17,000 each). Omega will introduce the first low cost navigation grade accelerometer, and expand the market into new applications.

III. <u>Management Team:</u>

Brad Chisum, CEO (Co-Founder): Brad Chisum has over ten years experience in the integrated circuit and sensor manufacturing industry. At STMicroelectronics, he successfully led teams to improve inventory management and production efficiency and was recognized as the site's most effective team leader. In 2002, Mr. Chisum joined SPAWAR where he headed up their Advanced Photolithography Research Program. Mr. Chisum helped improve the facilities to a world-class standard before transitioning to SPAWAR's Integrated Circuit Fabrication Facilities Engineering Manager. Before leaving to found Omega, Mr. Chisum became a Manager for the Integrated Circuit Design Team and served as its primary point-of-contact (POC) and liaison between SPAWAR and its partners, both commercial and government.

Richard Waters, CTO (Inventor & Co-Founder): Richard earned a Ph.D. in Electrical Engineering from the University of Colorado. Through his extensive experience in sensor design and manufacturing, he has become a leading expert in the field. The core technology of Omega



is the brain child of Dr. Waters, who is the primary author of all six patents and two pending for the technology. As the CTO, he directs all engineering activities for Omega's technological development. Dr. Waters initiated development of this technology at SSC-SD, securing over \$6 million of funding for technology development.

Nick Rhea, VP of Finance: Nick has a B.S. in Business Administration from the University of Kansas and has eight years of sales and management experience in the banking and insurance industries. In 2004 Nick founded Bombora Investments, Inc a real estate investment company. Later in 2004, Nick accepted an invitation to join the Board of Directors for Outdoor Outreach and currently serves as President of the Board. During 2006 Nick joined Omega as their VP of Finance. He handles all financial and accounting matters and assists in operations and marketing. He completes the San Diego State MBA program in May 2007.

Craig Braun, VP of Marketing: Craig has six years of management consulting experience with BearingPoint LLC (formerly KPMG Consulting) where he lead business development efforts and business & financial management engagements on US Navy IT acquisition programs. He has experience with Hewlett-Packard Company in New Business Development and served as a consultant to new ventures in the San Diego area. Craig is a Dean's Fellow at UC San Diego's Rady School of Management where he will receive his MBA in June, 2007. Craig earned a BS with Distinction in Management Science from UC San Diego in 1999.

Brian Bjorndal, Business Advisor:

- CEO of Assure Controls, experienced in commercializing government technology.
- Member of the board for the Center of Commercialization of Advanced Technology.
- Previously the CEO of the biotechnology company, Alliance Pharmaceuticals.

Dr. Tom Jones, Business Advisor:



- Department Representative to the Center's Science & Technology Advisory Committee
 (STAC), SPAWAR Code 2351, GPS and Navigation Systems Division
- Author/Coauthor of 11 navigation and surveillance related publications and presentations.
- ION (Institute of Navigation) Member

IV. Market Analysis

The total revenues for the World Sensors in Acceleration, Vibration and Velocity (AVV) are estimated to be \$4.3 billion in 2008 and growing 12% annually. The revenues are anticipated to steadily increase throughout the forecast period without any major increases or decreases⁵. North America and Europe hold over 80% of the market.



Figure 8: World AVV Market Segments

Seismic Imaging: In 2008, the seismic imaging accelerometer market size is estimated to be \$313M and grow 16% annually. Seismic imaging is performed worldwide and it is estimated that there are currently over four million⁶ sensors in use. Accelerometers revolutionized seismic imaging performance by introducing '3-D' measurement capability. The traditional technology, geophones, require gravity to function and therefore are limited to measurements in one direction, but accelerometers can measure in any direction allowing them to be put together in a single sensing node to enabling them to measure in '3-D' and thereby provide higher resolution images. Additionally, since geophones can only measure in one direction they must be carefully leveled during setup. With 5,000 to 10,000 sensors per survey, this process is time consuming.

⁵ Frost & Sullivan "World Sensors in Acceleration, Vibration and Velocity"

⁶ Data Provided by Strategic Partner



But accelerometers can measure gravity and in all three directions, so leveling is not necessary. This not only improves set up time, but also reduces the amount of human error in the seismic imaging data. However, current accelerometers have reached the limits of their technological capabilities and have failed to deliver a cost effective solution. The market needs include improved low frequency response, higher resolution, and lower cost. Research performed by the University of Houston and the University of California Berkeley show that low frequency measurements "provided detailed images of hydrocarbon reservoirs not seen on convention data." Improvement in seismic imaging requires a frequency response down to 1 Hz.

Currently, there are no seismic imaging sensors capable of this 1 Hz performance in the field, however, Omega's AcXel-Si boasts a low frequency response less than 0.5 Hz. Accelerometers offer improved performance over geophones, but cost five to ten times as much. It is the high sticker price of accelerometers that have prevented them from penetrating the market despite

Seismic Imaging Market							
	Price	"3-D"	Self	Low Frequency	Resolution		
	FIICE	Measurement	Leveling	Response	Resolution		
Geophone	\$40-\$60	NO	NO	5 Hz	High		
Accelerometer (x3)†	\$1,000-\$1,600	YES	YES	10 Hz	Higher		
Omega's AcXel (x3)† \$60 YES YES 0.5 Hz Highest							
[†] NOTE: Each sensing node uses three acceleromete							

Table 2: Seismic Imaging Sensors

their performance advantages. Omega's AcXel-Si will offer improved performance over existing accelerometers and will be available for the same price as a geophone.

Industrial Monitoring: Industrial Monitoring accelerometers are used to monitor buildings, bridges, dams and machinery such as turbines or cranes. In 2008, the industrial monitoring accelerometer market size is estimated to be \$374M and to grow 10% annually. Figure 9 shows

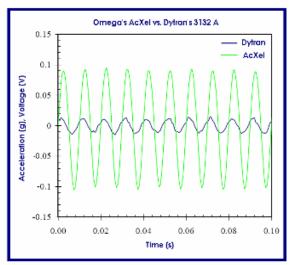
 $^{^7\} http://www.netl.doe.gov/technologies/oil-gas/Petroleum/projects/EP/Explor_Tech/15503.htm$



,	Industrial Monitoring Market	Size: \$448 Million	Growth: 10%	
		<u>Price</u>	<u>Strength</u>	<u>Weakness</u>
	Omega's AcXel	\$500	Sensitivity, Size	New to Market
	Colibrys	\$200-\$550	Proven Technology	Sensitivity
	Dytran Instruments	\$250-\$575	Proven Technology,	Sensitivity

Table 3: Industrial Monitoring Competition

the comparison of Omega's current prototype vs. Dytran's 3132A, a state-of-the-art industrial accelerometer (Retail price \$575). Both accelerometers were tested simultaneously. The overlaid results show Omega's AcXel is almost ten times more sensitive and has lower noise.



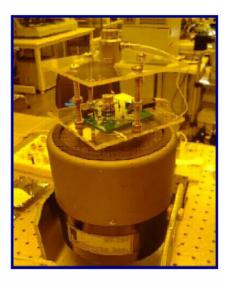


Figure 9: Omega's Prototype vs. the Dytran 3132A

This demonstration proves that Omega's AcXel can out perform Dytran's entire product line.

The improvements offered by the AcXel-Im will allow for greater machine up time by detecting vibration anomalies sooner and benefit structural monitoring through improved low frequency measurements. In structural monitoring it is not just quick sharp movements, such as from an earthquake, that determine the health of a structure, but also the slow swaying motion afterward. The slower movements are low frequency measurements that current accelerometers cannot measure. Other technologies, such as strain gauges and even GPS are used for these low frequency measurements, but are more expensive and difficult to install. Omega's AcXel, with its improved performance will be the first accelerometer capable of structural monitoring.

AcXel ——13



Navigation: In 2008, the navigation sensor market size is estimated to be \$403M and grow 22% annually. The accelerometers used by this market segment are the highest performing and the most expensive. The current state of the art accelerometer available is the Honeywell QA-3000, priced at over \$17,000 each. The cost of these accelerometers has limited their use to the least price sensitive customers: Military applications, such as fighter planes, missiles, unmanned vehicles, etc.; and commercial jetliners, etc. Despite the growing need, many applications (such as personal navigation of soldiers and firefighters, cars, boats, small aircraft, and even the majority of US missiles and bombs) are not able to afford the high end navigation systems.

According to Greg Vansuch of the DARPA's Special Projects Office, the introduction of a low cost, high performing navigation accelerometer would mean "... the military and civil applications will increase enormously, much like they have for GPS."

Navigation Sensor Market	Size: \$521 Million	Growth: 22%	
	<u>Price</u>	<u>Strength</u>	<u>Weakness</u>
Omega's AcXel	\$8,000	Price/Performance	New to Market
Honeywell QA-3000	\$17,000	Performance	Price
BAE Systems	\$13,000	Performance	Price

Table 4: Industrial Monitoring Competition

V. Marketing Strategy

Omega will be an OEM supplier selling its accelerometers to equipment manufactures within the AVV market. Omega will begin developing products for the AVV market starting year one and plan to sell its first sensor in year two.

Product: Omega's accelerometer technology will be branded under the AcXel Series name:

• Seismic Imaging: AcXel-Si

• Industrial Monitoring: AcXel-Im

• Navigation: AcXel-Navi



Figure. 10: AcXel Prototype



Price: The AcXel-Im accelerometer will retail for an estimated \$500. At this price the AcXel will be selling at the same price range as current high performance sensors but with superior performance in the industrial monitoring market. The AcXel-Si will reach the seismic imaging market in the third year and begin selling at \$50 per unit. By the fifth year the retail prices will reach \$20 per unit. At these prices and superior performance the AcXel-Si is positioned to disrupt the market. The AcXel-Navi average retail price will be an estimated \$8,000. Omega anticipates selling the AcXel-Navi at an aggressive price to quickly penetrate the competitive market. Omega's estimated manufacturing cost is \$37 per sensor in year two and decreases to \$12 by the fifth year thanks to the volume manufacturing friendliness of the AcXel technology. **Promotion:** Omega will spend over half of its marketing efforts on creating and maintaining strategic partnerships with sensor equipment manufacturers and distributors. High performance accelerometers are impossible to compare by spec sheets alone. There are neither governmental standards on how to report accelerometer performance or any industry standardization on physical specifications, output parameters, or packaging. In fact, the European accelerometer company Colybris stated during is presentation at the 2004 "Position Location and Navigation Symposium" that "without clear definition, [of how the spec sheets were derived], don't even try to compare products." Therefore, accelerometers are not purchased by spec sheets alone and customers must typically re-design their product to accommodate a different accelerometer. To prove to the customer the value of selecting the AcXel technology, Omega will perform on-site demonstrations comparing its accelerometer against the customer's current sensor. This is not a common practice in the industry due to the typically few number of product differentiators for accelerometers in the same category, but with Omega's high performance and affordability, it is the most effective way to communicate the product's improvement. These demonstrations have



prompted Dytran to write a letter of intent to distribute the AcXel world wide (see Appendix C). Dytran is a leader in the industrial accelerometer market, but after seeing the comparison between our prototype and their state-of-the-art accelerometer (Figure 9), they have offered to integrate the AcXel-Im into customized packaging to meet their client's needs. Teaser demonstrations will be performed at tradeshows and demonstration videos and results will be available through the company web page. Omega will build product credibility by publishing white papers and articles primarily published at relevant trade shows. Articles will focus on the benefits to applications and will be co-authored by Dr. Richard Waters, Omega's CTO, and a corresponding subject matter expert (Table 5).

Application	Application Expert (Co-author)
Seismic Imaging	Dr. Mark Zumberge (UCSD)
Industrial Monitoring	Dytran Instruments Dr. Jose Restrepo (UCSD)
Navigation	Dr. Tom Jones (Omega Board of Advisors)

Table 5: Publication Partners

Market Penetration: As an OEM supplier, Omega will use distributors to deliver its product to market. With the exception of large orders (>30,000 sensors) and custom orders, all customers will be directed to Omega's distributors. Omega has secured its first distributor for the industrial monitoring market, Dytran Instruments, and will be identifying additional distributors during product development. Selected distributors must have an established presence and brand name in the industrial monitoring world. Potential candidates include: PCB Piezotronics, Sentech Measurements, and L-TRON Incorporated.

Omega is working with leading seismic imaging equipment manufacturers to customize the AcXel technology for seismic imaging. These companies include: Input/Output, OYO Geospace, and Fairfield Industries. Omega has already obtained detailed information on desired performance specifications and interface connections. Omega will build prototype devices and



work with these and other manufactures to integrate this technology into their systems. It is estimated that each company will require one year to re-engineer their systems to take advantage of the AcXel technology. Due to the small number of companies in this market, Omega will distribute its product directly with a minimum order size of 15,000 units; the amount required to build one small array.

The Navigation market is unique within the AVV Sensors market in that it is dominated by very large players, such as Honeywell and Northrop Grumman. Successful attempts to penetrate this market in the past have been through strategic alliances, such as Colibrys entering the market through BEA Systems (2005), and Crossbow through Eclipse Jet (2006). Omega will follow this model leveraging its business advisor, Dr. Tom Jones, to facilitate introductions.

Market	Distributor	Status	
Seismic Imaging	Strategic Partner	In negotiations with Input/Output, OYO	
Seisiffic ifflagilig	strategie i artirei	Geospace, and Reservoir Innovation	
Industrial Monitoring	Dytran	Signed Letter of Intent (Appendix C)	
		Dr. Tom Jones, Omega's business advisor, has	
Novigation	TDD	key contacts the every major player in the	
Navigation	on TBD	navigation market (Systron Donner, Honeywell	
		Northrop Grumman, Kearfott, ect.)	

Table 6: Omega's First Distributors

Market Share: Seismic imaging market share projections are based off market penetration discussions with potential customers. Omega estimates capturing 10% of the market during year three and increase to 60% by year five. The industrial market will be characterized by early adoption by many small volume customers. Based off conversations with Dytran and the CCAT funded market research study conducted by SDSU, Omega will capture 2.5% of the market during the first year of sales. Market share capture will continue to grow by approximately 5% a year before leveling off at 20%. Further market penetration is possible through product price reduction. Navigation market share will be 5% during the first year of sales. This represents the



number of sensors one navigation systems customer would need to build approximately 1700 navigation systems (three accelerometers each); and a standard volume for an introductory navigation system product line.

VI. Operations

Product Development & Manufacturing: Omega will outsource all manufacturing and electronics development, but will keep the design of the sensing element, product test, and quality assurance in house. Because of the complex nature of sensor manufacturing process, Omega will retain its own supervising engineering staff that will work closely with the suppliers.

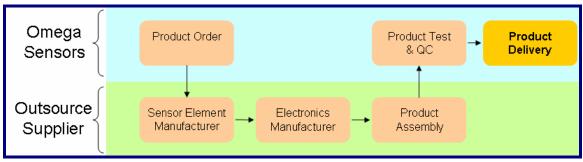


Figure 12: Product Flow

Omega's expertise lies in high performance accelerometer development. By combining this expertise with the end product expertise of its customers through product development partnerships, Omega will be able to develop products that meet the industry expectations faster.

Productization: Omega will use investor funds to customize the AcXel technology into an advanced prototype for the seismic imaging and industrial monitoring applications. This prototype will have same form, fit, and function of the deliverable product. Simultaneously, Omega will begin product manufacturing runs with its suppliers to further them on their learning curve, establish volume product yield, and lead time. These runs will also produce the initial product inventory.



Testing Facility: Omega will build a production level testing facility during year two. Funds will come from sales revenues with a target cost of \$500 thousand.

Future R&D: Omega has signed a Cooperative Research and Development Agreement (CRADA) with SPAWAR, the research lab where the technology was originally invented. Under the terms of this CRADA, SPAWAR and Omega will continue to research the core technology for application to other sensor varieties: including gyroscopes and pressure sensors; all potential future products for Omega. Omega will have the first right of refusal to exclusively license any new patents and have paid access to SPAWAR's development facilities and SPAWAR will maintain the right to use the technology to pursue government research dollars. Examples of projects that SPAWAR is currently receiving outside funding to develop the technology include: gyroscope research, energy harvesting devices, and pressure sensors.

Critical Risks			
Loss of CTO	Omega will strategically hire train its Engineering staff on the technology, and will purchase a key man insurance policy.		
Long Product Lead Times	Omega's manufacturing lead times are 4-6 months for an existing product line. Therefore Omega will work closely with its customers to forecast volumes and require a high minimum order.		
Long Sales Cycle:	The custom product order sales cycle takes up to 1 year. Omega will address potential customers early and place industry experts to the board of advisors (such as Dr. Tom Jones for navigation).		
Termination of the Strategic Partner Relationship	Omega has been contacted by one of the Strategic Partner's competitors and will pursue this potential further.		
Replacement Technology:	Omega will continue to develop innovative technology and leverage the R&D work conducted by SPAWAR		

Table 7: Critical Risks



VII. Financial Highlights

Sales: Commercial sales for the first orders of AcXel-Im will begin at month 14 and delivery fulfillment to customer four months later. This will be Omega's first source of sales revenue.

Cash reserves will provide a buffer should Omega incur delays, (Table 8.)

Sources	(US\$ '000)	Uses	(US\$ '000)
External Investment	4,000	Product Development	2,374
		G&A	692
		Cash	577
		Marketing	325
		Capital Expenditures	32
Total Sources of Cash	4,000	Total Uses of Cash	4,000

Table 8: Sources and Uses of Cash for the First 18 Months

Sales for AcXel-Si

will begin during year three even though the product will be ready in year two. This is because customers such as: OYO Geospace, Input Output, and Fairfield will need approximately one year to retool their systems. Commercial sales for AcXel-Navi will commence during year four. Year five sales for all products will total \$195 million and 2.2 million units. Not only do industry experts estimate the sensor markets to grow at double digit rates but management expects to contribute to the growth of the market size from additional applications created from Omega's higher performance sensors and lower retail prices. Applications that do not use navigation grade navigation systems due to cost include small aircraft, boats, automobiles, and personal navigation systems. Over time the average selling price will contract. Management anticipates increased volume, greater manufacturing efficiencies and lower SG&A expenses as a percentage of sales will offset future price contractions.

	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	\$0	\$9,151	\$43,420	\$111,275	\$194,600
Gross Profit	\$0	\$8,715	\$34,499	\$93,020	\$165,743
Operating Expenses	\$2,878	\$6,616	\$17,911	\$45,727	\$95,584
Net Income	(\$2800)	\$2,153	\$10,625	\$29,041	\$58,771
			- <u>-</u>		

Table 9: Five Year Pro Forma Condensed Income Statement (\$'000)



Expenses: Revenue from sales commences the 19 month and expenses, excluding cost of goods sold (COGS), from this point going forward are calculated as a percentage of gross sales. COGS for year three and year five are 21% and 15% respectively. The decrease reflects the introduction of the higher gross margin Axcel-Navi. Because of high margins, SG&A expenses will be at the low end of other comparable sensor manufacturing companies. Management estimates year three SG&A at 26% and declining to 23% for year five. The decline reflects Omega reaching a higher point on a "learning curve".

Capital Structure: Currently the two founders, Brad Chisum and Richard Waters, own 40% each. Nick Rhea and Craig Braun own 2.5% each fully vested in five years. Omega has set aside an employee stock option pool of 15% for key officers and employees. Management is offering 49% of the company to investors in exchange for a \$4 million capital investment.

Exit Strategy: Management plans to exit through a merger or acquisition. Measurement Specialties, Inc. is a global designer and manufacturer of sensors. Their recent acquisitions of Betatherm Sensors and YSI Temperature were completed on an EBITDA multiple of 6.93.

Using this multiple and Omega's fifth year EBITDA of \$96 million values the company at \$665 million. This provides investors with an 81X cash on cash return and an internal rate of return equal to 141%.

There is also the possibility of an IPO for a company with Omega's fifth year characteristics. Based on Yahoo's average P/E of 19 for the Scientific and Technical Instruments Industry⁸ and Omega's fifth year net income of \$59 million management estimates Omega's market valuation near \$1.1 billion at the end of year five. This would generate a \$549 million return on a \$4 million investment. This is an IRR of 168% and 137X cash on cash return.

AcXel ——21

⁸ http://biz.yahoo.com/ic/837.html



Appendix A: Technology TIP Sheet



<u>Ultra-High Sensitivity MEMS Displacement Sensor</u>

Omega Sensors Incorporated (OSI) has licensed a suite of patents developed by the US Navy. OSI is seeking strategic partnerships / collaborations for the further development and commercialization of the technology for high-end sensor applications including inertial and vibration applications.

The Technology:

The core technology is an optical MEMS-based displacement sensor whose signal to noise ratio has been measured to be up to -115 dB with further increases possible. Measured displacements of the mechanical components as small as 1/1000th the size of an atom have been made. Applicable sensors include accelerometers, gyroscopes, acoustic, thermal and magnetic.

The key invention encompasses the concept and fabrication method of a MEMS displacement sensor that is based on the monolithic integration of a Fabry-Perot Interferometer (FPI) and a photosensor. Transmission of light through a FPI is exponentially sensitive to small displacements in a movable mirror due to an applied force. The photosensor converts this displacement into an electrical signal and provides for additional amplification.

Key Benefits:

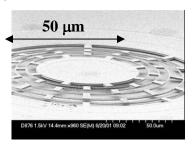
- Ultra-sensitivity the interferometer and photosensor are integrated on the same substrate; this combination is compact and has minimal parasitic elements enabling reduced noise levels and improved signal to noise ratios.
- Attractive performance to cost ratio a realistically achievable goal is an accelerometer with performance on par or better than the best quartz based technology but with MEMS cost structure.
- Ease of adoption prototypes have been produced at the SPAWAR Integrated Circuit Fabrication Facility using standard semiconductor processing equipment and processes. Funding has been supplied via DARPA, ONR and AFRL/MN.

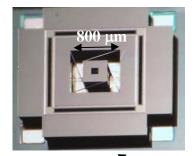
Development Status:

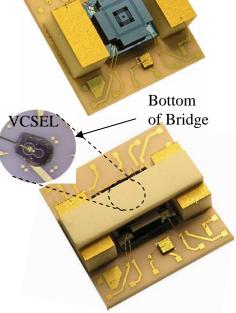
- Proof-of-concept accelerometer, integration of FPI with silicon photodiode on a chip-scale completed.
- Extensive noise floor testing mainly in static and dynamic mode on said VCSEI modules, performed.
- Second generation devices successfully fabricated and third generation sensors being fabricated via DARPA funding.

Contact:

CTO: Dr. Richard Waters, 619-980-9625, watersrl@omegasensors.com; CEO: Mr. Brad Chisum, 619-602-5414, bradchisum@omegasensors.com www.omegasensors.com









Appendix B: CCAT Contract Signature Page

Center for Commercializ	ation of Advanced Technology
Center for Commercianz	ation of Advanced Technology
. SUBCONTRACT NUMBER: 54144A 7815	ENCUMBRANCE NUMBER:
2. This Subcontract is entered into this 10th by and between the undersigned parties.	Day of April , in the year 2006 ,
under the Center for Commercialization of Advanced	ractor") agrees to perform advanced product development Technology (CCAT) Program as specified in Exhibit A, k, Budget, and Schedule, which are hereby incorporated.
4. PERIOD OF PERFORMANCE: Y/2 m7	Start April 10 th , End Date: August 31 st , 2006
5. CONTRACT AMOUNT: 74,983.80	Total Allocated for Equipment:
This Subcontract has been executed by the parties he	reto, upon the date first above written.
6. Name of organization receiving services:	7. Name of business or org. providing services:
San Diego State University Research Foundation	Omega Sensors, Inc.
Referred to as:	Referred to as:
Foundation O	Subcontractor
Animorized signature: Stylo	Authorized signature: 15n/Cha
Printed name:	Printed name:
Michèle G. Goetz, Director	Brad Chisum
Sponsored Research Administration	Chief Executive Officer
Address:	Address:
5250 Campanile Drive, MC 1934	2907 Shelter Island Dr., #105, PMB 155
San Diego, CA 92182-1934	San Diego, CA 92106
Points of contact.	
8. Point of contact for Foundation:	9. Point of contact for Subcontractor:
Tom Sheffer - CCAT Program Director	Brad Chisum, Chief Executive Officer
Address:	Address:
5250 Campanile Drive, MC 1933	2907 Shelter Island Dr., #105, PMB 155
San Diego, CA 92182-1933	San Diego, CA 92106
Contact information:	Contact information: Phone: 619.602.5414
Phone: 619.594.4135 Fax: 619.594.5774	Fax: 619.255.0008
Email: tsheffer@foundation.sdsu.edu	Email: bradchisum@omegasensors.com
Email: Isliener@joundation.susu.edu	Tax ID: 20-4021854



Appendix C: Dytran Letter of Intent



Dytran Instruments, Inc.

21592 Marilla St. Chatsworth, CA 91311 Ph; 818-700-7818 Fax: 818-700-7880 www.dytran.com email: info@dytran.com

March 2, 2007

Omega Sensors Incorporated 2907 Shelter Island Drive #105 PMB 155 San Diego, CA 92106

Letter of Intent

As Vice President of Sales and Marketing for Dytran Instruments, it has been a pleasure to learn about Omega Sensors accelerometer technology. The proposed partnership will complement Dytran's product line and offer mutual benefit to both companies.

With the details of the arrangement subject to approval by both companies, Dytran is exited about the opportunity to add Omega Sensors' accelerometers to its product line. The increased performance of Omega Sensors' accelerometers will allow Dytran to offer its customers unique value. Dytran's 27 years of experience in design, manufacturing and world wide distribution, we feel, will benefit Omega Sensors and we welcome the opportunity to add Omega Sensors' advanced technology to the Dytran product line.

Dytran looks forward to this mutually beneficial relationship,

A. Shunge

Sincerely,

Dytran Instruments, Inc.

David A. Change

Vice President, Sales & Marketing



Appendix D: Licensed Patent List

Item No.	U.S. Patent Number or U.S. Patent Application Serial Number (if patent not yet issued)	Navy Case No.	Issue Date of U.S. Patent or Filing Date of U.S. Patent Application (if patent not yet issued)	Title	Inventors
1	6,546,798	83062	April 4, 2003	"Micro-Electro-Mechanical Systems Resonant Optical Gyroscope"	Richard L. Waters and Monti E. Aklufi
2	6,550,330	83061	April 22, 2003	"Differential Amplification for Micro- Electro-Mechanical Ultra-Sensitive Accelerometer"	Richard L. Waters, Chris Hutchens and Monti E. Aklufi
3	6,581,465	82431	June 24, 2003	"Micro-electro-mechanical systems ultra sensitive accelerometer"	Richard L. Waters and Monti E. Aklufi
4	6,763,718	83612	July 20, 2004	"Micro-Electro-Mechanical Ultra- Sensitive Accelerometer with Independent Sensitivity Adjustment"	Richard L. Waters and E. Monte Aklufi
5	6,948,388	84769	September 27, 2005	"Wireless Remote Sensor"	Stanley R. Clayton, Stephen R. Russell, Mark R. Roser and Richard L. Waters
6	10/763133	84715	filed May 1, 2003	"Integrated Circuit Porphyrin-Based Optical Chemical Sensor"	Richard L. Waters and Chris Hutchens
7	10/911748	84774	filed July 27, 2004	"Micro-Electro-Mechanical Systems Magnetic Vibration Power Generator"	Richard L. Waters, Patrick M. Sullivan, and Barry R. Hunt
8	60/835965	96659	filed 25 July, 2006	"Method of fabricating a dual-suspension system for MEMS-based devices"	Richard L. Waters



Appendix E: Dr. Richard Waters' Publications and Recognition

Refereed Publications

- R.L. Waters, M.E. Aklufi, "Micromachined Fabry-Perot Interferometer for Motion detection", **Applied Physics Letters**, Vol. 81, No. 18, Oct., 2002.
- R.L. Waters, B. Van Zeghbroeck, "Temperature-dependent Tunneling through thermally Grown SiO2 on n-type 4H- and 6H-SiC", **Applied Physics Letters**, Vol. 76, No. 8, Feb., 2000.
- R.L. Waters, J. Torvik, B. Van Zeghbroeck, J. Pankove, "GaN / SiC HBTs and Related Issues", **Solid State Electronics**, pp. 265-270, vol 44, 2000.
- R.L. Waters, J. Patterson, B. Van Zeghbroeck, "Micromechanical Optoelectronic Switch and Amplifier (MIMOSA)", **J. Selected Topics in Quantum** Elec., pp. 33-35, Jan 1999.
- R.L. Waters, B. Van Zeghbroeck, "On Field Emission from a Semiconducting Substrate", **Applied Physics Letters**, Vol. 75, No. 16, Oct., 1999.
- R.L. Waters, B. Van Zeghbroeck, "Fowler-Nordheim Tunneling of Holes Through Thermally Grown SiO2 on p+ 6H-SiC", **Applied Physics Letters**, Vol. 73, No. 25, Dec., 1998.

Conference Proceedings

- R.L. Waters, "Active MEMS-based Fabry-Perot Transduction Mechanism for Increased Displacement Sensitivity", GOMAC 2003, Tampa, FL., 2003.
- R.L. Waters, T.E. Jones, "Electro-Optical Ultra-Sensitive Accelerometer", **Position Location and Navigation Symposium (PLANS)**, Palm Springs CA, April 15th, 2002.
- R.L. Waters, R. Kline, E Olevsky, M.E. Aklufi., "Modeling of Thermal stress Build-up During Processing of Multi-layer Microdynamical Systems", **International Community for Composites Engineering**, San Diego, CA., July 2002.
- R.L. Waters, B. Van Zeghbroeck, "Analysis of the Temperature Dependence of the SiO2 / SiC Barrier Height", **Electronic Materials Conference (EMC)**, 1999.
- R.L. Waters, B. Van Zeghbroeck, "Fowler-Nordheim Hole Tunneling through SiO2 on p+6H-SiC", **Electronic Materials Conference (EMC)**, 1998.
- R.L. Waters, "MEMS-based Electro-Optical Transduction Method", NanoSpace 2002.
- R.L. Waters, B. Van Zeghbroeck, "MIcro-Mechanical Optoelectronic Switch and Amplifier (MIMOSA)", LEOS 1998, Monterey, CA, 1998.

Recognition

- SPAWAR's inaugural 2005 Outstanding 'S&T Excellence' Award which recognizes outstanding R&D as well as S&T development work.
- Civilian meritorious award in June of 2005 again in recognition of his technology development efforts.



Appendix F: Five Year Income Statement

Omega Sensors, Inc. Income Statement

(in thousands unless otherwise noted)

(in mousands diness otherwise noted	1)		% of Total			% of Total	I		% of Total	l		% of Total	I		% of Total
Revenue		Year 1	Revenue		Year 2	Revenue		Year 3	Revenue		Year 4	Revenue		Year 5	Revenue
Seismic	\$	-	0%	\$	-	0%	\$	15,000	35%	\$	31,520	28%	\$	39,700	20%
Industrial		-	0%		9,151	100%		28,420	65%		53,700	48%		98,640	51%
Navigation		-	0%		-	0%		-	0%		26,055	23%		56,260	29%
Net Sales	\$	-	0%	S	9,151	100%	\$	43,420	100%	\$	111,275	100%	\$	194,600	100%
Cost of Goods Sold															
Costs of Goods Sold			0%	s	436	5%	s	8.921	21%	\$	18,255	16%	s	28.857	15%
	\$0	-	0%		_	0%	`	-	0%		-	0%	Ť		0%
Total Variable COGS	\$	-	0%	S	436	5%	\$	8,921	21%	\$	18,255	16%	\$	28,857	15%
Total Fixed Cost of Goods Sold	\$	_	0%	\$	_	0%	\$	_	0%	\$	-	0%	s	_	0%
Total Cost of Goods Sold	\$	-	0%	\$	436	5%	\$	8,921	21%	\$	18,255	16%	\$	28,857	15%
Gross Profit	\$	-	0%	\$	8,715	95%	\$	34,499	79%	\$	93,020	84%	\$	165,743	85%
Operating Expenses															
Sales & Marketing	\$	195	0%	\$	1,319	14%	\$	5,645	13%	\$	14,466	13%	\$	23,352	12%
Research & Development		2,250	0%		3,785	41%		6,513	15%		16,691	15%		25,298	13%
G & A (without Depreciation)		428	0%		1,453	16%		5,645	13%		14,466	13%		21,406	11%
Depreciation		6	0%		59	1%		109	0%		104	0%		103	0%
Total Operating Expenses	\$	2,878	0%	\$	6,616	72%	\$	17,911	41%	\$	45,727	41%	\$	70,159	36%
Income from Operations	\$	(2,878)	0%	\$	2,099	23%	\$	16,588	38%	\$	47,292	43%	\$	95,584	49%
Interest Income	\$	78	0%	S	54	1%	\$	257	1%	\$	315	0%	\$	762	0%
Interest Expense		-	0%		-	0%		-	0%		-	0%		-	0%
Income Before Taxes	\$	(2,800)	0%	\$	2,153	24%	\$	16,845	39%	\$	47,608	43%	\$	96,346	50%
Taxes on Income*	\$	-	0%	\$	-	0%	\$	6,220	14%	\$	18,567	17%	\$	37,575	19%
Net Income (Loss)	\$	(2,800)	0%	\$	2,153	24%	\$	10,625	24%	\$	29,041	26%	\$	58,771	30%
Growth Rate															
EBITDA	\$	(2,872)		\$	2,157		\$	16,697		\$	47,397		\$	95,687	

^{*}Net Operating Loss carry-forward has been incorporated into this statement.



Appendix G: Five Year Balance Sheet

Omega Sensors, Inc.

Balance Sheet

(in thousands)										
Assets		Year 1		Year 2		Year 3		Year 4		Year 5
Current Assets										
Cash	\$	804	\$	2,896	\$	12,034	\$	38,695	\$	93,635
Investments		-		-		-		-		-
Accounts Receivable		-		251		3,571		9,151		16,003
Notes Receivable		-		-		-		-		-
Inventory		250		-		-		-		-
Other Current Assets		-		-		-		-		-
Total Current Assets	\$	1,054	\$	3,147	\$	15,605	\$	47,846	\$	109,638
Property, Plant & Equipment	J									
Buildings & Leasehold Improvements		-		-		-		-		-
Furniture & Fixtures		9		12		12		12		12
Machinery & Equipment		-		500		500		500		500
Office Equipment		2		2		2		2		2
Computers & Software		16		18		18		18		18
Accumulated Depreciation		(6)		(64)		(173)		(277)		(380)
Total Net Property, Plant & Equipment	\$	21	\$	468	\$	359	\$	255	\$	152
Other Assets	s	-	\$	-	\$	-	\$	-	\$	-
Total Assets	\$	1,075	\$	3,615	\$	15,964	\$	48,100	\$	109,791
Liabilities & Owners' Equity	J									
Current Liabilities]									
Accounts Payable		125		512		2,236		5,332		8,251
Total Current Liabilities	\$	125	\$	512	\$	2,236	\$	5,332	\$	8,251
Total Liabilities	\$	125	\$	512	\$	2,236	\$	5,332	\$	8,251
Stockholder Equity										
Common Stock	\$	4.000	s	4.000	\$	4.000	\$	4.000	s	4,000
Retained Earnings	"	(3,050)	ľ	(897)	*	9,728	Ψ	38,768	ľ	97,539
Dividends Payable		(5,656)		(037)		5,725		50,700		57,555
Total Stockholders' Equity	\$	950	S	3,103	\$	13,728	\$	42,768	S	101,539
						-				
Total Liabilities & Equity	\$	1,075	\$	3,615	\$	15,964	\$	48,100	\$	109,791



Appendix H: Statement of Cash Flows

Omega Sensors, Inc. Cash Flow

		311	11011			
(in thousands)						
Sources of Cash:	Year 1		Year 2	Year 3	Year 4	Year 5
Operating Activities						
Net Income (Loss)	\$ (3,050)	\$	2,153	\$ 10,625	\$ 29,041	\$ 58,771
Adjustments to reconcile Net Income (Loss)						
Depreciation & Amortization	\$ 6	\$	59	\$ 109	\$ 104	\$ 103
Changes in Assets & Liabilities						
Accounts Receivable	\$ -	\$	(251)	\$ (3,320)	\$ (5,580)	\$ (6,852)
Accounts Payable	125		387	1,724	3,096	2,919
Net Cash Provided (Used) in Operations	\$ (3,169)	\$	2,598	\$ 9,137	\$ 26,661	\$ 54,940
Investing Activities						
Purchases of Fixed Assets	\$ (27)	\$	(505)	\$ -	\$ -	\$ -
Net Cash Provided (Used) in Investing	\$ (27)	\$	(505)	\$ -	\$ -	\$ -
Financing Activities						
Sale of Stock	\$ 4,000	\$	-	\$ -	\$ -	\$ -
Payment of Dividends	-		-	-	-	-
Net Cash Provided (Used) in Financing	\$ 4,000	\$	-	\$ -	\$ -	\$ -
Change in Cash Balance						
Net Increase (Decrease) in Cash	\$ 804	\$	2,093	\$ 9,137	\$ 26,661	\$ 54,940
Beginning Cash Balance (Deficit)	-		804	2,896	12,034	38,695
Ending Cash Balance (Deficit)	\$ 804	\$	2,896	\$ 12,034	\$ 38,695	\$ 93,635