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A DEFINING PARTNERSHIP: Midrex and Kobe Steel

By James D. McClaskey
Midrex, President and CEO

This year marks the 30th anniversary of Kobe Steel’s purchase of Midrex.

I’d like to take this opportunity to recognize this milestone and the incredible accomplishments that have been achieved by the synergy of Midrex and our parent company - Kobe Steel, Ltd. We are very fortunate to have a parent company that not only promotes and supports us, but also one that allows us to focus on technological innovation and excellence.

Kobe has helped make Midrex not only the “world leader in direct reduction technology,” but also to continue to be the world innovator in this expanding industry. To date Midrex has been involved in more than 60 DR Plants. We moved MIDREX® Plants across oceans...a few more than once...We’ve built plants in areas with little or no real infrastructure. We’ve solved problems by inventing solutions other could not. We’ve built plants that outperform our competition day in and day out. In short, we have achieved incredible feats! We have achieved incredible accomplishments!

And we have achieved this together as Kobe and Midrex. The partnership between the companies has been mutually beneficial and we are grateful for the support Kobe has provided over the years.

Midrex began in the US in Toledo Ohio. Willy Korf, a German industrialist brought Midrex to Charlotte in 1974. The late 1970s were a good time for Midrex, and MIDREX® Plant sales; however, that period was followed by the severe economic downturn in the early 1980s. It was a very difficult time for the global metals industries, including steel...and Willy Korf. Korf Industries, Willy Korf’s holding company, entered bankruptcy in March 1983 and was forced to sell its holdings, including Georgetown Steel and Midrex.

Enter Kobe Steel.

The documents for the purchase were signed on August 25, 1983. To be honest, there was initial uncertainty when the assets of Midrex Corporation were acquired from Korf. What would Kobe Steel do with the MIDREX® Technology? How would Midrex company resources figure into their future plans?

Thankfully for Midrex, Kobe Steel, Ltd. was very interested in acquiring Midrex because of its experience with the MIDREX® Process, and were quick to affirm that it had acquired “the assets of Midrex.”

This meant the Midrex people with the knowledge and experience of the technology, as well as the MIDREX® Technology. Throughout the years, the engineering, sales, project management,
and R&D groups of Midrex and Kobe Steel have cooperated closely to make significant advancements in all aspects of our business. Several groups were interested in Midrex, but out of all of them, Kobe had “Midrex’s best interest in mind!”

Midrex could have easily become a footnote in another company’s history. But as part of Kobe Steel we became more than just the sum of our parts. We became the predominant technology provider!

Some relationships define the partners. Others are defined by the partners in the relationship. In the case of Midrex and Kobe Steel, both of these statements hold true.

Kobe Steel was a partner in the first direct reduction plant built for Qatar Steel Company and saw first-hand the potential of direct reduction and the opportunities presented by the MIDREX® Direct Reduction Process. Kobe Steel was instrumental in the project to renovate and reactivate what became known as OPCO (now FMO Planta de Briquetas) - the first plant in Venezuela to use MIDREX technology to produce hot briquetted iron (HBI). They served as turnkey supplier and business partner of COMSIGUA and more recently the lead on Qatar Steel II, Jindal Shadeed, and SULB Projects.

Kobe Steel’s R&D personnel have worked closely with our engineers and technicians to advance state-of-the-art ironmaking technology and equipment, most noticeably in the development of the FASTMET®/FASTMELT® and iTmk3® Processes. Their support has enabled Midrex to weather steel industry downturns and to emerge with the strength to take advantage of the opportunities that recoveries bring.

Midrex is presently executing projects in Russia, the USA, and India including the world’s two largest HBI plants: LGOK HBI III and voestalpine Texas. We also are commercializing a revolutionary new technology to utilize coke oven gas to fuel the MIDREX® Process. Long term this could be the best environmental solution for integrated steelmakers to reduce their carbon footprint.

Our future looks bright, but that does not stop us from continuing to develop new technologies and improve on existing ones. The way we continue to expand the technological boundaries of direct reduction and ironmaking in general is the hallmark of the Kobe/Midrex partnership.

As we begin our next 30 years with Kobe Steel as our parent company and business partner, we are excited by the bright prospects for direct reduction and other advanced ironmaking technologies.

On behalf of all Midrex employees, I sincerely thank Kobe Steel for being such a strong parent and partner through the years, and look forward to road ahead.
KOBE STEEL AND MIDREX: 30 YEARS OF SUCCESS

INNOVATION AND QUALITY IN IRONMAKING TECHNOLOGIES

By John Kopfle, Henry Gaines

INTRODUCTION
This year marks the 30th anniversary of Kobe Steel’s purchase of Midrex. The partnership between the two companies has developed over that time into a close and mutually beneficial one. The 30 years have been filled with many successes, which have made the MIDREX® Direct Reduction Process the world’s leading direct reduction technology. There also have been many challenges that the companies have overcome through good engineering and business practices, creativity, cooperation, and hard work. This article takes a brief look back at an extraordinary three decades.

THE BEGINNING (PRE-KOBELCO)
Midrex Technologies, Inc. began as a division of the Surface Combustion Corp. in Toledo, Ohio. Surface Combustion was acquired by the Midland-Ross Corporation in 1959. In the mid-1960s, Donald Beggs, Manager of Surface Combustion's Research Group, conceived the idea of using natural gas reforming to produce high quality syngas for reducing iron oxide pellets in a shaft furnace.

In 1974 Midland-Ross sold the Midrex Division to Korf, who was developing a worldwide empire of steel related businesses. Korf formed Midrex Corporation and moved the company to Charlotte, North Carolina.

During the latter part of the 1970s, numerous plants were sold, many in the developing world. By 1979, Midrex had started up over five million metric tons (Mt) of direct reduction (DR) capacity. Annual world direct reduced iron (DRI) production grew from 0.8 Mt in 1970 to 7 Mt in 1980.

KOBE ACQUIRES MIDREX
In the early 1980s, recession in the USA caused a downturn in the metals industries worldwide, and world steel production stagnated. Willy Korf’s empire, built on a large amount of debt, began to crumble. By 1983, he was in bankruptcy and forced to sell off parts of his holdings. Among the interested buyers for Midrex was Kobe Steel Limited (KSL), one of Japan’s major steel-makers. KSL was part owner in the QASCO steel complex in Qatar, which included a MIDREX Plant, and was impressed with MIDREX’ Direct Reduction Technology. In August 1983, KSL acquired Midrex. Taisuke Mori, Executive Vice Chairman, explained the rationale for the purchase: (next page)
KSL’s intent was not to utilize the technology in its operations, but to earn a profit for its Engineering and Machinery Division from selling plants.

During the mid-1980s, the steel industry continued to languish, with no growth in total production. Midrex was able to secure a project with the state of Sabah in Malaysia, which was developing an industrial complex to make use of extensive natural gas reserves. The facility was designed to be a “merchant” plant (sell product to the market). Because most of the plant’s output would be transported by ocean, DRI in pellet form was not the best product option because of its tendency to reoxidize and the handling problems it can cause in meltshops not designed for its use. A new product, hot briquetted iron (HBI), was developed because it is much more resistant to reoxidation, can be stored and handled like scrap, and can be charged using existing equipment. The design of an HBI plant presented many challenges, but Midrex engineers succeeded and the plant started up in late 1984. There are now 14 MIDREX® Modules with the capability to produce HBI, and total MIDREX® HBI production in 2012 was nearly eight million tons.

Another MIDREX Project during that time was a module at Alexandria Steel in Egypt. KSL supplied the facility, its first MIDREX Project, which provided DRI for the company’s steel mill. Now known as EZDK, the complex has three MIDREX Modules, all supplied by KSL, that typically produce over their total rated capacity of 2.3 Mt.

**DRI: A GROWING INDUSTRY**

By the late 1980s, the recession had ended, and world steel production was increasing. Continued mini-mill growth increased the “scrap intensity of steelmaking.” The pressure on scrap supplies, and higher prices, increased demand for DRI. In 1987, Midrex experienced a breakthrough with the signing of contracts for three new facilities: OPCO, VENPRECAR, and Essar Steel. Kobe Steel played a major role in the OPCO project.

OPCO’s origin was in 1981, when Midrex began discussions with CVG Ferrominera Orinoco of Venezuela about modifying an idled direct reduction facility in Venezuela. The plant was built by US Steel but was never successful, and was closed in the 1970s. A study confirmed the viability of the project to retrofit the plant and produce HBI for merchant sale. CVG signed a contract with Kobe Steel in December 1987 to

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“With the acquisition of the MIDREX Direct Reduction Process, and the skills and expertise of Midrex Corporation employees, Kobe Steel can now offer a totally integrated [steel] facility. The technical excellence of the MIDREX Process is testimony to the research and development and engineering capabilities of Midrex People. Kobe Steel will become an active partner with Midrex in developing new projects by providing turnkey project capabilities and alternative financing programs.”

Taisuke Mori
Executive Vice Chairman – Kobe Steel, ltd.
August 1983

Meeting Between Kobe Steel and Midrex Technical Groups in 1980s
execute the project. This was a unique job in several respects. First, it involved the use of existing steam reformers paired with a new MIDREX® Shaft Furnace. Second, the new shaft furnace was the first MIDREX® MEGAMOD® design, with a MIDREX® shaft furnace capable of producing one million tons per year. Third, Kobe Steel would lease the plant, modify it, operate it for a number of years, and then turn it back to CVG. The plant started up in 1989.

Another project led by KSL was conceived to take advantage of Venezuela’s vast iron ore, natural gas, and electricity resources was COMSIGUA. Originally, the project was to include a pelletizing plant, MIDREX CDRI Plant, steel mill, and MIDREX HBI Plant. Over time, the scope was reduced to just the HBI plant, which was started up in 1998. The owners included KSL and several Japanese trading companies that marketed the product. Since then, the plant has produced over 14 Mt of HBI that was sold to steelmakers throughout the world.

10.3.13

The 1990s was a time of tremendous demand for DR plants. This was driven by a number of factors, including the US economic expansion, the growth of steel mini-mills, the movement of EAF steel producers into higher quality products, the need for “clean” charge materials to produce these grades of steel, and increasing demands on scrap supplies and the resulting price increases. As a result of this high DRI demand, there were 18 MIDREX Modules started up from 1992-2000, with a total capacity of nearly 14 million tons per year and an installed value of about $2.1 billion. KSL’s purchase of Midrex was paying off.

BUST TO BOOM TO BUST
The world steel industry began turning down in 1997 with the Asian financial crisis, known as the “Asian Flu.” Steel cycles typically last five to ten years, and by the late 1990s, the strong run was coming to an end. In addition, the “Dot-com” boom, driven by the growth in internet stocks, came to a crashing halt, and the US stock market plummeted. The combination of these factors resulted in a downturn in the metals industries. By late 2001, selling prices for HBI were below production cost and there was little interest in new DR Plants. Nevertheless, Midrex and KSL continued their sales and technology development efforts to be well positioned for the rebound.

That rebound was driven by China, whose insatiable demand for raw materials and energy fueled a period of economic growth the likes of which the world had never seen. From 2000-2008,
Chinese steel production grew from 127 Mt to 500 Mt, an annual growth rate of 19 percent, and China was consuming nearly 40 percent of the world's steel. As a result, world steel demand and prices boomed. As an example, the price of flat steel skyrocketed from $231/t in December 2001 to $1,175/t in August 2008.

Midrex was extremely busy during this boom, signing contracts for more than 16 Mt of capacity from 2004-2007, which was by far the most successful sales period in the company's history. One of the projects was Hadeed Module E in Saudi Arabia, the world's largest operating direct reduction module, which produced nearly two million tons in 2011. A large portion of its output is delivered hot to the adjacent steelmaking shop, which provides significant productivity and energy savings benefits.

In 2007 the global financial crisis that began it resulted in the collapse of major financial institutions, government bank bailouts, downturns in stock markets, and a crash in real estate values. The steel industry suffered as well. From 2008-2009, production in the United States, the EU, and Japan dropped by 30 percent. Demand in the USA and Japan has now recovered to nearly pre-crisis levels, but Europe is still reeling. Fortunately, Midrex was not seriously affected by the crisis; in large part because most of the company’s new clients are in the emerging markets. From 2010-2013, Midrex signed six more MIDREX® Plant contracts, having a total capacity of 8.3 Mt per year.

These projects incorporate many new technologies and features:

- **Jindal Steel and Power (India)** - World’s first MXCOL Plant, will use syngas from a coal gasifier to produce DRI
- **JSW Projects (India)** - Will use syngas from the company’s two COREX® Plants to produce DRI in a MIDREX Shaft Furnace
- **Lebedinsky GOK HBI III** - Eurasia’s largest HBI module, designed to produce 1.8 Mtpy of HBI annually
- **JSW Dolvi Works (India)** - Will use coke oven gas from the steel works to supplement natural gas for the production of DRI. The MIDREX Plant started up in 1992 and operated using natural gas which is in short supply in India.
- **voestalpine Texas** - Making use of the abundant and inexpensive natural gas resources being developed in the USA. HBI will be made in Texas and shipped to Austria for melting in voestalpine’s blast furnaces and BOFs.

**REBIRTH OF COAL-BASED TECHNOLOGY**

For most of its history, Midrex has pursued direct reduction using coal. In the 1960s, Surface Combustion developed the Heat Fast Process for reducing iron ore using coal in a rotary hearth furnace (RHF). Much pilot plant and demonstration work was done, but it was stopped so the company could concentrate on the natural gas-based MIDREX Process. In 1989, Midrex and KSL revisited the Heat Fast work and resumed research. The process was renamed FASTMET® and a 150 kilogram per hour pilot plant was built at the Midrex Technical Center. Based on successful test campaigns conducted from 1992-94, KSL constructed a demonstration plant at its Kakogawa Works in Japan. The facility started up in 1995 and was the world’s first rotary hearth DR plant to make highly metallized DRI. It now recycles dust from the iron and steelmaking furnaces.

KSL has now built six FASTMET Plants for recycling steel mill wastes, with a total feed capacity of one million tons per year. These are successfully reducing the environmental impact of the steel mills.

In 1996, KSL began tests on a new RHF process involving the melting of FASTMET-type pellets containing iron ore and...
carbon. A unique phenomenon was discovered; the temperature was raised to about 1,450° C after reducing the iron ore, and the iron and slag separated, resulting in a nugget of nearly pure iron plus carbon. This process was named ITmk3 for “Ironmaking Technology Mark Three.” Following promising laboratory results, tests were conducted on the Midrex FASTMET Process pilot plant at KSL’s Kakogawa Works. These efforts led to the construction of a 25,000 t/y demonstration facility on the Minnesota “Iron Range” in the USA. Campaigns conducted resulted in the creation of a partnership between KSL and Steel Dynamics, Inc., a leading USA mini-mill operator, to build the world’s first commercial scale ITmk3 Plant in Minnesota. The plant started up in 2010 and continues to increase capacity and improve operations. ITmk3 promises to be a revolutionary technology, enabling production of a premium grade iron product without the use of coke.

AN OUTSTANDING PARTNERSHIP
Since the purchase of Midrex by Kobe Steel in 1983, Midrex and KSL’s sales, engineering, projects, and research groups have enjoyed a close working relationship. KSL has been a partner with Midrex in the projects shown in Table I. In the cases of EZDK, FMO, COMSIGUA, Kakogawa, and Mesabi Nugget, KSL took an ownership role.

### TABLE I PROJECTS WITH KSL INVOLVEMENT

<table>
<thead>
<tr>
<th>Project</th>
<th>Technology</th>
<th>Location</th>
<th>Capacity (tpy)</th>
<th>Start-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>EZDK I</td>
<td>MIDREX</td>
<td>Egypt</td>
<td>720,000</td>
<td>1986</td>
</tr>
<tr>
<td>FMO</td>
<td>MIDREX</td>
<td>Venezuela</td>
<td>1,000,000</td>
<td>1990</td>
</tr>
<tr>
<td>EZDK II</td>
<td>MIDREX</td>
<td>Egypt</td>
<td>800,000</td>
<td>1997</td>
</tr>
<tr>
<td>COMSIGUA</td>
<td>MIDREX</td>
<td>Venezuela</td>
<td>1,000,000</td>
<td>1998</td>
</tr>
<tr>
<td>EZDK III</td>
<td>MIDREX</td>
<td>Egypt</td>
<td>800,000</td>
<td>2000</td>
</tr>
<tr>
<td>Hirohata I</td>
<td>FASTMET</td>
<td>Japan</td>
<td>190,000*</td>
<td>2000</td>
</tr>
<tr>
<td>Kakogawa</td>
<td>FASTMET</td>
<td>Japan</td>
<td>16,000*</td>
<td>2001</td>
</tr>
<tr>
<td>Hirohata II</td>
<td>FASTMET</td>
<td>Japan</td>
<td>190,000*</td>
<td>2005</td>
</tr>
<tr>
<td>Hirohata III</td>
<td>FASTMET</td>
<td>Japan</td>
<td>190,000*</td>
<td>2008</td>
</tr>
<tr>
<td>Fukuyama</td>
<td>FASTMET</td>
<td>Japan</td>
<td>190,000*</td>
<td>2009</td>
</tr>
<tr>
<td>Mesabi Nugget</td>
<td>ITmk3</td>
<td>USA</td>
<td>500,000</td>
<td>2010</td>
</tr>
<tr>
<td>Jindal Shadeed</td>
<td>MIDREX</td>
<td>Oman</td>
<td>1,500,000</td>
<td>2011</td>
</tr>
<tr>
<td>Hirohata IV</td>
<td>FASTMET</td>
<td>Japan</td>
<td>190,000*</td>
<td>2011</td>
</tr>
<tr>
<td>SULB</td>
<td>MIDREX</td>
<td>Bahrain</td>
<td>1,500,000</td>
<td>2013</td>
</tr>
</tbody>
</table>

Note: Capacities are for product, except those noted with an asterisk, which are for feed.
INNOVATION AND QUALITY IN IRONMAKING TECHNOLOGIES

Midrex is a technology company founded on the pursuit of innovation and is dedicated to continuous improvement of these innovations. Over the past 30 years Kobe Steel has provided a perfect environment for Midrex to foster innovation and technology development.

Midrex and Kobe Steel have maintained an intensive research and development program to enhance operating efficiency, reduce maintenance requirements, improve iron ore and energy flexibility, and improve the economic viability of its process technologies.

THE FOLLOWING ARE SOME OF THE TECHNOLOGY DEVELOPMENTS THAT HAVE BEEN KEY TO THE CONTINUED SUCCESS OF MIDREX:

> LARGER CAPACITY PLANTS – The first MIDREX Plant in Portland, Oregon, USA, had two shaft furnaces of 150,000 tpy capacity each. The latest plant sold has a guaranteed capacity of 2 Mtpy via a single shaft furnace. This is a scale-up of 13 times. Because of the economy of scale, this provides tremendous economics. Midrex is developing a design for a 3 Mtpy module.

> LOWER ENERGY CONSUMPTION – State-of-the-art MIDREX Plants can incorporate up to five stages of heat recovery, and they consistently achieve the lowest natural gas consumption in the industry.

> FLEXIBILITY IN IRON ORE USE – Midrex continues to investigate suitable iron ores and to design plants to incorporate the widest range of feed materials possible. MIDREX® Shaft Furnaces have operated reliably and consistently using 70 percent lump ore.

> REDUCTANT OPTIONS – Midrex built the world’s only shaft furnace DR plant using COREX® offgas in South Africa and another one is under construction in India. MXCOL includes designs for use of syngas from COREX Plants, coal gasifiers, coke oven gas (COG), and other coal-based gases. Modules incorporating a coal gasifier and COG are under construction in India.

> HOT TRANSPORT OPTIONS – Midrex offers three options for discharging DRI hot from the shaft furnace and feeding it to an electric arc furnace. These include HOTLINK® (gravity feed), hot transport conveyor, and hot transport containers. There are six modules incorporating hot transport containers and one using a hot transport conveyor in operation. Under construction are two modules with HOTLINK and one with a hot transport conveyor.

CONCLUSION

Kobe Steel’s purchase of Midrex in 1983 has provided great value to both companies. Midrex has benefited from KSL’s technical and financial strengths, and KSL has gained access to the world’s most successful direct reduction technology and Midrex’s talented staff. Midrex and KSL will continue to advance the state-of-the-art in ironmaking technology and will consider new business models and partnerships to grow the business.

Midrex is truly a global company with offices in the UK, Russia, China, and India, and there is the possibility of even more locations in the future. The KSL/Midrex partnership has been a resounding success and we look forward to an exciting future.
THE FINANCING OF LGOK HBI III

Midrex UK, Ltd.’s First Project

By Chris Ravenscroft

In August of 2012, Russia’s Metalloinvest announced expansion at their Lebedinsky Mining and Processing Integrated Works (Lebedinsky GOK) in Gubkin, Russia. Metalloinvest contracted with Siemens VAI Metals Technologies and consortium partner Midrex Technologies, Inc. to execute plans for a new MIDREX® HBI Plant with a production capacity 1.8 million metric tons of hot briquetted iron per year. This new HBI plant is a key part of Metalloinvest’s development strategy to strengthen the company’s positions on the global HBI market and significantly increase production volume of high value-added iron ore products. It is also the first project to utilize Midrex’s expanded financing capabilities through Midrex UK, Ltd.

Midrex UK, Ltd. (Midrex UK) opened its doors for business in 2010 at 2 London Bridge right in the heart of one of the world’s leading financial cities, London, England. It was the first permanent Midrex office outside the USA and the selection of London as was very deliberate. The financial and business environment in the United Kingdom would allow Midrex to offer Export Credit Agency (ECA) financing support. Midrex saw the establishment of Midrex UK as a major step to provide additional aid to a sometimes critical part of Midrex’s project proposals.

Midrex examined many locations and scenarios before settling on the UK for its new location. A team of Midrex sales, marketing and procurement professionals in coordination with Kobe Steel helped to establish the office and dialog with the financial and governmental institutions. Mike Jasper was soon added as Director of Midrex UK, Ltd. because of his experience in financing similar size projects with UK financial organizations. The investment and persistence by Midrex UK lead to exploring many options and in 2012 saw the fruition of its first contract. The LGOK HBI III Project is exactly what Midrex UK, Ltd. was established to handle.
Midrex UK, Ltd. (Midrex UK) opened its doors for business in 2010 at 2 London Bridge.

THE HEART OF MIDREX UK, LTD.
EXPORT CREDIT FINANCING

A DR plant of any kind is a large capital investment. As important as choosing the proper technology provider and solution is the ability to finance the project. Companies look to borrow money to finance projects, rather than fund from their own resources, even if they have deep financial pockets. Financing allows a buyer to defer paying for a project until it is constructed when earnings from the project then repay the loan taken out to buy and build it. It is a very common and popular way to enable construction and development of various projects.

This is the business model that Metalloinvest always intended to use for this new HBI plant and therefore being able to aid with financing options allowed us to be able to better assist the client.

The growing reality is that new plant buyers expect bidders to bring potential access to financing with them as part of their proposal. Although the steel industry has recovered from its lows of the last decade, investment in the steel industry is not what it once was. This is an important reason for project financing and the capability is becoming more important than ever. Midrex UK bring another added capability to the company’s core competencies. Financing on its own is not ever likely to win a contract, but it can be an essential part to effectuating a project contract.

Midrex UK was established to take advantage of the United Kingdom’s excellent ECA financing support. The UK’s ECA is known as the Export Credit Guarantee Department (ECGD). There are two critical pre-requisites to access ECGD financing. The exporter must be a UK registered company and must source a minimum scope of supply from the UK as the ECGD is there to support UK companies and exports. Establishment of Midrex UK, Ltd. fulfills the first requirement, thus it became the “main contractor” and signatory to the LGOK HBI III Contract.

As part of the due diligence with start-up of the Midrex UK office, Midrex worked with various UK sub-contractors to ensure that not only the right scope of goods could be procured from the UK, but also the highest quality materials possible. In doing so, Midrex UK was able to comfortably exceed the minimum level of UK content while maintaining the same high
quality of manufactured good. In many cases the same vendors are being utilized by use of their UK counterparts. Midrex was therefore able to meet the criteria to enable the client to access UK ECA financing. Metalloinvest understood the contractual and financing structure involved and were comfortable from the start contracting with Midrex UK – with Midrex Technologies, Inc. firmly and fully involved.

ECA financing processes and arrangements often follow a separate, sometimes parallel route to the relevant commercial and technical negotiations as was the case on LGOK III. ECGD were first made aware of the potential for LGOK III in 2009 and were kept advised and updated by Midrex UK as periodic bouts of activity and discussion took place. The first serious “contact” however was at the 2011 Conference on MIDREX Technology in London in October 2011 which was attended by senior figures from Metalloinvest and ECGD. Informal discussions during the Seminar resulted and that all-important first contact achieved. ECGD continued to support Midrex UK whenever requested with letters of support, indications of terms and conditions, general advice and direction and direct communication with Metalloinvest. ECGD also initiated contact and held discussions with their Austrian ECA counterparts OeKB who are supporting our consortium partners Siemens VAI with Austrian ECA financing.

The ECA financing arrangements are proceeding with banks working with Metalloinvest and the ECAs on documentation and the required environmental impact studies and reports are underway. Financial close is anticipated for this autumn. In the interim, LGOK HBI III continues under the financial umbrella of L/C’s which will, ultimately, be replaced by the ECA financing.

There more than 70 Licensed MIDREX® Plants in operation around the world and Midrex Technologies, Inc. has been directly involved with more than 60 of these plants. Midrex UK marks a new capability for construction of future plants and projects.

MIDREX® Technology was chosen for the LGOK’s second module in 2005 and again for the LGOK’s third HBI facility in 2012. The existing MIDREX® HBI Plant began operation in 2007 and is currently the world’s largest operating single HBI plant/furnace in the world with a capacity rated at 1.4 million tons per year. The new LGOK HBI III plant will continue to expand LGOK’s HBI production and will do so as in part due to Midrex UK’s involvement in bringing to the table ECA financing.
Midrex celebrates 30th anniversary with Kobe Steel

On September 18th, a group of Kobe Steel and Midrex Employees gathered together in Charlotte to recognize the 30th anniversary of Kobe Steel’s acquisition of Midrex, and celebrate their long and prosperous relationship.

The luncheon, held in Midrex’s home of Charlotte, NC, featured a brief look back at the highlights of the Midrex / Kobe Steel relationship along with the incredible feats that the two companies had accomplished together.

James D. McClaskey, current President & CEO of Midrex Technologies, Inc. spoke to the crowd of nearly 240 people about the unique and rewarding relationship. He recounted both personal and professional stories from a unique and special vantage point. McClaskey had been a young engineer early in his career when Kobe Steel first came into contact with Midrex. He saw first-hand how the two companies grew and evolved the MIDREX® Technology from relatively small beginnings to becoming the technology leader for Direct Reduction Ironmaking. From HBI to current hot discharge MIDREX® Plants, McClaskey spoke to how Midrex’s technology and solutions have progressed under Kobe Steel’s guidance. The synergy of the two companies has helped Midrex to break new ground in the field of direct reduction technology including use alternative fuels such as coal and coke oven gas to produce DRI, as well as commercial advancements in rotary hearth furnace technology including FASTMET® and ITmk3®.

Among the honored guests and speakers that spoke about the unique and special relationship of the two companies, were Shohei Manabe, Executive Officer, Iron Unit Division for Kobe Steel, Ltd. and former Midrex President and CEO of Midrex, Winston L. Tennes.
Designed for Today, Engineered for Tomorrow™

- More operating hours annually
- More tons of product annually
- More product and fuel options
- More operational flexibility
- More value for the investment

Christopher M. Ravenscroft: Editor

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