Managing Technology — Big River Steel

12–14 September 2017
Memphis, Tenn., USA
Sheraton Memphis Downtown Hotel

AIST
ASSOCIATION FOR IRON & STEEL TECHNOLOGY

About the Program

This technology conference focuses on the assessment, selection and implementation of advanced technology in today's modern steel plants. The focus of this program is the new Big River Steel facility. The program begins on Tuesday afternoon with presentations by Big River Steel management personnel on the company's engineering concepts, contract methods, production concepts, technology decisions and operating performance. Wednesday's program will include technical presentations by process technology providers and equipment suppliers associated with the facility. The program will conclude on Thursday with a tour of the Big River Steel facility conducted by the plant's technical and operating staff.

About Big River Steel

Big River Steel has built the world's first Flex Mill™, a steel mini-mill focused on the production of a wide product spectrum, including advanced automotive steels and electrical steels. The Big River Steel facility, located in Osceola, Ark., USA, is designed to produce the largest range of hot strip dimensions possible using the latest thin-slab casting and rolling technologies from SMS group. Located on 1,300 acres in Osceola, Ark., the site is bordered on the east by the Mississippi River and on the west by a main line railroad operated by BNSF. The US$1.3 billion Flex Mill combines the best of integrated mills and mini-mills.

Who Should Attend

This program is ideal for steel producing executives, engineering, operations and process technology personnel involved with the assessment, selection and implementation of advance steelmaking technology. Industry technology and equipment suppliers interested in new steel plant technology implementation and operation also will benefit from this program.

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Organized By

AIST's Project & Construction Management Technology Committee.

Schedule of Events

12 September 2017

Noon
Registration

2 p.m.
Managing Technology — Big River Steel Introduction
Terry Charters, Stelco Inc.

2:15 p.m.
Project Overview and Business Success
David Stickler, Big River Steel
Big River Steel is the newest and most technologically advanced steel mill in North America. With a focus on energy efficiency and environmental stewardship, Big River Steel is the only steel production facility in the world to be LEED certified (LEED certification indicates that Big River Steel is a global leader in environmental and energy design as determined by an independent review agency).

3 p.m.
Products of Big River Steel
Mark Bula, Big River Steel
Big River Steel is focused on making an extremely wide variety of products, hence the term Flex Mill (Big River Steel can "flex" instantaneously to meet the market needs as they change).

3:40 p.m.
Technical Success and Plant Operations
Denis Hennessy, Big River Steel
Big River Steel has already achieved a number of production successes. Included among these are the start of operations after only 19 months of construction (batch anneal and skinpass mill), the fastest start-up ever for a SMS-supplied CSP mill (63,000 tons of production in the first full month of operation) and the first flat-rolled mini-mill in North America to degas using an RH degasser (nitrogen and carbon levels as low as 20 ppm).

4:20 p.m.
Artificial Intelligence and Creating a Learning Steel Mill
Matt Denesuk, Noodle.ai

5 p.m.
Question and Answer Session

5:30 p.m.
Reception

13 September 2017

7 a.m.
Breakfast

8 a.m.
Big River Steelmaking — Project Concept Through Start-Up
J. Kevin Cotchen, SMS USA LLC
From the inception of the Big River Steel project in 2006, the concept of producing significant quantities of advanced steel grades was considered. As the project developed, the planned product mix gradually evolved to include advanced high-strength steels for the automotive industry, high-strength pipe grades for energy applications and silicon grades to address electrical infrastructure. This presentation traces the history of Big River Steel from initial project concept through the actual start-up and operation from the perspective of the steelmaking requirements, equipment specification and selection.

8:45 a.m.
Big River Steel Spray-Cooled™ EAF Shells and Roof With Integral Elbow
Scott Ferguson, The Systems Group
This presentation discusses the electric arc furnace shells, roofs and elbows Systems Spray-Cooled Inc. supplied to Big River Steel. The equipment integrated the fume hole elbow into the roof for a seamless one-piece design, eliminating the potential of slag carryover and buildup in the fume hole elbow, as well as false air ingress. Also discussed are the challenges encountered in delivering the equipment in one piece from the fabrication facilities in northeast Ohio to Big River Steel's site in Osceola, Ark., USA.

9:30 a.m.
Break

9:45 a.m.

Start-Up and Commissioning of the HBI, Alloy and Flux Material Handling System for Big River Steel's Meltshop

Kyle Shoop, Tenova

Big River Steel recently installed and commissioned a material handling system for HBI, alloys and fluxes for its 165-ton DC EAF and LMFs. In order to provide a better understanding of the system the design, engineering, commissioning and operation will be reviewed. This review will include the unloading and proper storage of the materials. Also this presentation will provide the philosophy and details of the equipment for feeding the EAF and LMFs.

10:30 a.m.

A Modern Rectifier and Power Quality System for a Modern Steel Plant

Matteo Fabbri, ABB Switzerland Ltd.

The Big River Steel DC power supply system delivers 176 MW of power output while meeting the stringent power quality demands requested by the utility provider. It features the largest DC twin reactor ever built to stabilize the arc, the next-generation thyristors rectifier control electronics, an improved electrode regulation, and a direct fiber-optic link to the SVC control system that thanks to a special algorithm provides a higher flicker mitigation factor. The whole system has been designed considering the present and future production needs of the plant that led to the special reactor size, the full rectifier transformer ratings and the use of DC NOARC switches.

11:15 a.m.

Power Solutions for Steel Industry

Anil Kanagala, Primetals

This presentation will cover the power solutions available for a plant such as Big River.

Noon

Lunch

1 p.m.

Advanced Features of the Big River Steel CSP® Operation

Joseph Laughlin, SMS USA LLC

The discussion will include a description of the many innovative features of the continuous caster and hot rolling mill at Big River Steel. These items provide for the opportunity to make advanced steel grades. Included will be a description of the mechanical design, level 1 automation and level 2 control models for these features: liquid core reduction, dynamic solidification modeling, unique tunnel furnace design, future induction heating provision, work roll shifting and bending, reinforced laminar cooling, edge masking, and downcoiling. A recrystallization model and a material property model have also been provided to assist in the production of a broad and high-quality product mix.

1:45 p.m.

Water Treatment at Big River Steel

Steve Pegg, Russula Corp.

A description of the equipment supplied for the water treatment at Big River Steel. It will include a discussion of the "green" aspects of the system and the overriding philosophy of water treatment.

2:30 p.m.

Break

3 p.m.

Rolling, Processing and Finishing Operations at Big River Steel

Michael Peretic, SMS USA LLC

The Big River Steel plant has been planned and configured to have the capability to produce a particularly wide variety of steel sheet products as well as coiled plate. Obtaining this capability has required the installation of state-of-the-art equipment with unique actuators, features, and controls to consistently and economically produce high-quality material that meets the objectives for dimensional tolerances, mechanical properties, and surface performance. This presentation will address the key elements of this high-performing and state-of-the-art facility.

3:45 p.m.

BRS Management Philosophy

Lenore Trammell, Big River Steel

An overview of the leadership, selection process for employees and what about Big River Steel makes it unique and successful.

4:30 p.m.

Questions and Answer Session

5 p.m.

Reception

14 September 2017

7 a.m.

Breakfast

8 a.m.

Plant Tour of Big River Steel

Noon

Return From Plant Tour and Adjourn

AIST.org

Registration

AIST Members

US$745 by 1 August 2017

US$845 after 1 August 2017

Non-members

US$960 by 1 August 2017

US$1,060 after 1 August 2017

Registration Includes

A welcome reception Tuesday, continental breakfasts Wednesday and Thursday, lunch and reception Wednesday, plant tour with bus transportation, and a course workbook or flash drive including presentations.

Hotel Accommodations

A block of rooms has been reserved at the Sheraton Memphis Downtown. Please call the hotel at +1.800.325.3535 or **book a room online** by 21 August 2017 to secure the AIST discount rate of US$149 per night for single/double occupancy.

Featured Plant Tour

Big River Steel

Upcoming Events

> International Symposium on New Developments in Advanced High-Strength Sheet Steels

30 May–2 June 2017

Keystone Resort and Conference Center > Keystone, Colo., USA

> CHS^2 2017 — Hot Sheet Metal Forming of High-Performance Steel

4–7 June 2017

Atlanta Marriott Marquis > Atlanta, Ga., USA

> 24th Annual Crane Symposium

11–13 June 2017

The Omni William Penn > Pittsburgh, Pa., USA

> Sheet Processing and Finishing Lines – A Practical Training Seminar

17–21 September 2017

Ann Arbor Marriott Ypsilanti at Eagle Crest > Ypsilanti, Mich., USA

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