

# PROJECT CONTROL DOCUMENT – TRP 0150

**PROJECT TITLE:** Development of Submerged Entry Nozzles that Resist Clogging – Plant Trials

**PROJECT DESCRIPTION:** The objective of the program is to develop a submerged entry nozzle used in continuous casting of steel that resists the common clogging problems. The goal of the study is to understand the mechanisms controlling nozzle accretion through post-mortem microstructural characterization of the processing conditions, development of high temperature accretion and thermal shock simulations, modeling of fluid flow and thermal stresses and detailed wetting studies.

## PRIMARY RESEARCH ORGANIZATION(S):

University of Missouri – Rolla  
Department of Ceramic Engineering  
Rolla, MO

**PRINCIPAL INVESTIGATOR(S):** Dr. Jeff Smith

**PROJECT PARTICIPANTS:** AK Steel  
Rouge Steel/Severstal N.A.  
Bethlehem Steel/ISG/Mittal USA  
Ispat Inland Inc/Mittal USA  
Timken Company

**PROJECT DURATION:** 48 Months

**PROJECT START DATE:** 7/11/02

**PROJECT BUDGET (excluding AISI Project Mgmt.):** \$571,820

**TECHNICAL PROJECT MANAGER:** Bill Obenchain – AISI Washington, DC

## KEY CONTACTS:

<u>NAME</u>	<u>COMPANY</u>	<u>PHONE</u>	<u>FAX</u>
J. Smith	UMR	573-341-4447	573-341-6934
W. Obenchain	AISI	202-452-7208	202-463-6573
J. Vehec	AISI	412-922-2772 x216	412-922-3213
H. Schade	AK Steel	513-425-2337	513-425-2866
T. Shellhammer	ISG	610-694-5550	610-694-2981
G. Ludkovsky	Mittal USA	219-399-6010	219-399-1186
T. Tsai	Mittal USA	219-399-8290	219-399-6562
S. Street	Severstal N.A.	313-317-9745	
P. Glaws	Timken Company	330-471-2360	330-471-4077