

## Glossary

ABM	Antiballistic missile.
BMDC	<i>Ballistic Missile Defense Center</i> —SAFEGUARD operations center in Colorado.
CENTRAN	<i>Central Logic and Control Translator</i> —The SAFEGUARD project standard software language.
CLC	<i>Central Logic and Control</i> —The multiprocessor computer used to drive each SAFEGUARD data-processing system.
DPS	<i>Data-Processing System</i> —The CLC hardware, software, and peripheral devices.
DPSPRs	<i>Data-Processing System Performance Requirements</i> —Documents that specify the required performance to be provided by the SAFEGUARD system software.
ECU	<i>Exercise Control Unit</i> —Digital interface equipment between the CLC and radar analog hardware used to facilitate simulation of a threat environment.
IOC	<i>Input Output Controller</i> —Controls the transfer of data between the CLC and its peripherals.
M&DSS	<i>Maintenance and Diagnostic Subsystem</i> —Test equipment and software supporting digital equipment maintenance.
MDC	<i>Missile Direction Center</i> —The MSR site and its remote launch facilities.
MDP	<i>Maintenance and Diagnostic Subsystem Processor</i> —CDC 1700 computer supporting digital equipment maintenance.
Meck	<i>Meck Island</i> —Field test site; part of the Kwajalein Atoll.
MSR	<i>Missile Site Radar</i> —Part of the MDC site complex; the radar equipment for missile tracking and local surveillance.
PAR	<i>Perimeter Acquisition Radar</i> —Long-range surveillance and tracking radar.
PPS	<i>Policies, Procedures, and Standards</i> —Manual containing documents that state policy defining the management, documentation, design, implementation, and control of SAFEGUARD software.
SAFSCOM	<i>Army SAFEGUARD System Command</i> —The Army agency having responsibility for SAFEGUARD ABM development.
SDRS	<i>SAFEGUARD Data Reduction System</i> .
SNX	<i>SAFEGUARD NIKE-X</i> —CLC assembly language.
SPARTAN	The long-range interceptor missile employed by the SAFEGUARD system.
SPRINT	A fast-reacting, short-range interceptor missile employed by the SAFEGUARD system.
STACS	<i>SAFEGUARD Tactical Computer Simulator</i> —Used for unit/task level debugging of programs.
STAG	<i>SAFEGUARD Threat Action Generator</i> —A software facility that enables the simulation of a SAFEGUARD threat for use by the system exerciser.
TSCS	<i>Tactical Software Control Site</i> —A collection of SAFEGUARD hardware that provides a duplicate of the software environment at a deployed tactical site.
TR/CR	<i>Trouble Report/Correction Report</i> —Part of a control system in which all problems were identified by a trouble report and the solution to each problem was described by a correction report.
XPF	<i>Execution Preparation Facility</i> —Performs the linkage editor function for software to be executed on the CLC.



## List of Contributors

**Newell H. Brown**, B.S.E.E., 1952, University of Maryland; Bell Laboratories, 1952—. Mr. Brown has conducted sensitivity analyses of analog computer systems used in U. S. Navy radars. He assisted in the development of a millimeter radar contributing in the areas of antennas and systems. Since 1957, he has been concerned with problems of battle management, target classification, and systems engineering for ABM systems. He currently heads a department responsible for algorithm and program design for radar and missile control, performance evaluation of a multiprocessor computer system, and systems engineering for the SAFEGUARD Missile Direction Center. He holds patents on antenna systems. Member, ORSA.

**Ronald R. Conners**, B.S. (Physics), 1964, St. Louis University; M.S. (Electrical Engineering), 1965, University of California at Berkeley; Bell Laboratories, 1964–1974; American Telephone and Telegraph Co., 1974—. From 1964 to 1969, Mr. Conners was involved in the programming, integration, and testing of TSPS No. 1. From 1969 to 1974 he supervised various activities within SAFEGUARD, including development of the CENTRAN compiler, the acquisition of support computers, and monitoring the operation of these computers. He is presently a data systems supervisor at AT&T.

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level language for No. 1 ESS. He participated in the design and implementation of the tracing facilities for SNOBOL 4. While working on the SAFEGUARD project, he was responsible for the design and coordination of implementation of CENTRAN. Later he worked on the SAFEGUARD hardware logic fault simulator and on an IR&D study. During 1974, Mr. Dickman was involved in the design and development of a UNIX-based program-development environment and is presently responsible for the design and implementation of a network specification language for BISCUM.

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**Joseph P. Haggerty**, B.E.E.E., 1967, Manhattan College; S.M. and E.E., 1969, Massachusetts Institute of Technology; Bell Laboratories, 1969—. Mr. Haggerty initially worked on the SAFEGUARD linkage editor, XPF. He later designed verification tests for the CLC operating system and analyzed the effect of proposed changes to the operating system. Member, ACM, IEEE, Eta Kappa Nu, Tau Beta Pi, Sigma Xi.

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navigation computers and participated in systems applications studies of magnetrons. His initial assignments at Bell Laboratories involved design and test activities related to transmitters and receivers for the NIKE-HERCULES radars. He designed portions of the precision tracker for TELSTAR. His assignments in the digital computer field have included design and test of special-purpose and general-purpose machines, specification of software requirements, implementation and testing of real-time operating systems and real-time missile guidance software, and establishing projectwide software change management, quality assurance, documentation standards, and management reporting systems for use on SAFEGUARD. He currently heads a department which does the design of tests involving the SAFEGUARD R&D Missile Site Radar system at Meck Island in support of the Army's ballistic missile test program. Member, IEEE, Phi Beta Kappa, Tau Beta Pi, Sigma Xi, Eta Kappa Nu, and Pi Mu Epsilon.

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and in operational studies of the Bell System. At present, he is head of the Data Processing System Control Department. His current responsibilities include studies to improve software quality and fundamental studies of software reliability.

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