§ 62.50–1 General.

(a) Where automated systems are provided to replace specific personnel in the control and observation of the engineering plant and spaces, or reduce overall crew requirements, the arrangements must make sure that under all sailing conditions, including maneuvering, the safety of the vessel is equal to that of the same vessel with the entire plant under fully attended direct manual supervision.

(b) Coast Guard acceptance of automated systems to replace specific personnel or to reduce overall crew requirements is predicated upon—

(1) The capabilities of the automated systems;

(2) The combination of the personnel, equipment, and systems necessary to ensure the safety of the vessel, personnel, and environment in all sailing conditions, including maneuvering;

(3) The ability of the crew to perform all operational evolutions, including emergencies such as fire or control or monitoring system failure;

(4) A planned maintenance program including routine maintenance, inspection, and testing to ensure the continued safe operation of the vessel; and

(5) The automated system’s demonstrated reliability during an initial trial period, and its continuing reliability.

NOTE: The cognizant Officer in Charge, Marine Inspection (OCMI) also determines the need for more or less equipment depending on the vessel characteristics, route, or trade.

(c) Equipment provided to replace specific personnel or to reduce overall crew requirements that proves unsafe or unreliable in the judgment of the cognizant Officer in Charge, Marine Inspection, must be immediately replaced or repaired or vessel Manning will be modified to compensate for the equipment inadequacy.

§ 62.50–20 Additional requirements for minimally attended machinery plants.

NOTE: Minimally attended machinery plants include vessel machinery plants and spaces that are automated, but not to a degree where the plant could be left unattended. Emphasis is placed on the centralized remote control and monitoring of the machinery plant and machinery spaces.

(a) General. (1) Navigating bridge propulsion control must be provided.

(2) An ECC must be provided and must include the automatic and remote control and monitoring systems necessary to limit the operator’s activity to monitoring the plant, initiating programed control system sequences, and taking appropriate action in an emergency.

(3) The ECC must include control and monitoring of all vital engineering systems, including—

(i) The propulsion plant and its auxiliaries;

(ii) Electrical power generation and distribution;

(iii) Machinery space fire detection, alarm, and extinguishing systems; and

(iv) Machinery space flooding safety systems, except the valves described in paragraph (e)(4) of this section.

(4) ECC control of vital systems must include the ability to place required standby systems, auxiliaries, and power sources in operation, unless automatic transfer is provided, and to shut down such equipment when necessary.

NOTE: ECC remote control need not include means for a single operator to bring the plant to standby from a cold plant or dead ship condition or controls for non-vital systems or equipment.

(b) Alarms and instrumentation. (1) A personnel alarm must be provided and must annunciate on the bridge if not routinely acknowledged at the ECC or in the machinery spaces.

(2) Continuous or demand instrumentation displays must be provided at the ECC to meet the system and equipment monitoring requirements of this part if the ECC is to be continuously attended. If the watchstander’s normal activities include maintenance, a roving watch, or similar activities in the machinery spaces but not at the ECC,
§ 62.50–20

both alarms and instrumentation must be provided.

(3) All required audible alarms must
annunciate throughout the ECC and
machinery spaces.

(c) Fire detection and alarms. An ap-
proved automatic fire detection and
alarm system must be provided to
monitor all machinery spaces. The sys-
tem must activate all alarms at the
ECC, the navigating bridge, and
throughout the machinery spaces and
engineers’ accommodations. The ECC
and bridge alarms must visually indi-
cate which machinery space is on fire,
as applicable.

NOTE: For purposes of this part, the spe-
cific location of fires that are not in machin-
ery spaces need not be indicated.

(d) Fire pumps. (1) The ECC must in-
clude control of the main machinery
space fire pumps.

(2) Remote control of a required fire
pump must be provided from the navi-
gating bridge. Where one or more fire
pumps is required to be independent of
the main machinery space, at least one
such pump must be controlled from the
navigating bridge.

(e) Flooding safety. (1) Machinery
space bilges, bilge wells, shaft alley
bilges, and other minimally attended
locations where liquids might accumu-
late must be monitored from the ECC
to detect flooding angles from vertical
of up to 15° heel and 5° trim.

(2) The ECC must include the con-
trols necessary to bring at least one
independent bilge pump and inde-
pendent bilge suction required by
§ 56.50–50(e) of this chapter into opera-
tion to counter flooding.

(3) Where watertight doors in sub-
division bulkheads are required in the
machinery spaces, they must be Class 3
watertight doors and must be control-
lable from the ECC and the required
navigating bridge control location.

(4) Controls must be provided to oper-
ate the sea inlet and discharge valves
required by §56.50–95(d) of this chapter
and the emergency bilge suction re-
quired by § 56.50–50(f). These controls
must be arranged to allow time for op-
eration in the event of flooding with
the vessel in the fully loaded condition.
Time considerations must include de-
tection, crew response, and control op-
eration time.

(f) Communications. (1) A means must
be provided at the ECC to selectively
summon any engineering department
member from the engineering accom-
modations to the ECC.

(2) The voice communications system
required by §113.30–5(a) of this chapter
must also include the engineering offi-
cers’ accommodations.

(g) Electrical systems. (1) The ECC
must include the controls and instru-
mentation necessary to place the ship
service and propulsion generators in
service in 30 seconds.

(2) The main distribution and propul-
sion switchboards and generator con-
trols must either be located at the
ECC, if the ECC is within the bound-
aries of the main machinery space, or
the controls and instrumentation re-
quired by part 111 of this chapter must
be duplicated at the ECC. Controls at
the switchboard must be able to over-
ride those at the ECC, if separate. Also
see §§111.12–11(g) and §111.30–1 regarding
switchboard location.

(h) Maintenance program. (1) The ves-
sel must have a planned maintenance
program to ensure continued safe oper-
ation of all vital systems. Program
content and detail is optional, but
must include maintenance and repair
manuals for work to be accomplished
by maintenance personnel and checkoff
lists for routine inspection and mainte-
nance procedures.

(2) The planned maintenance pro-
gram must be functioning prior to the
completion of the evaluation period for
reduced manning required by §62.50–
1(b)(5).

(3) Maintenance and repair manuals
must include details as to what, when,
and how to troubleshoot, repair and
test the installed equipment and what
parts are necessary to accomplish the
procedures. Schematic and logic dia-
grams required by §62.20–1 of this part
must be included in this documentation.
Manuals must clearly delineate
information that is not applicable to
the installed equipment.

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19090, May 26, 1988; 53 FR 19090, May 26, 1988;