charge must examine the certification
to ensure compliance with the require-
ments of this section.

§ 197.535 Regulated areas.
(a) Based on the employer's evalua-
tion of the environmental monitoring,
whenever the airborne concentration of
benzene within an area exceeds or rea-
sonably can be expected to exceed the
permissible exposure limits, the person
in charge shall mark the area as a reg-
ulated area.
(b) The person in charge shall re-
strict access to regulated areas to au-
thorized persons wearing an appro-
priate respirator in compliance with
§ 197.550 and the personal protective
clothing and equipment in compliance
with § 197.555. The person in charge
shall not allow any person to enter a
regulated area without another indi-
vidual in the vicinity to perform rescue
or call for help. The second individual
must maintain communication with
the one entering the regulated area or
keep that individual in sight. Also, the
second individual must be located at
the point of access during confined
space entry.
(c) The boundaries of regulated areas
must be indicated by barricades, other
devices, or by painted areas on the ves-
sel. A sign bearing the following legend
in letters at least three inches high
(except for the words “DANGER—BEN-
ZENE”, which must be printed in let-
ters at least 50 percent larger than the
other words) must be posted at each ac-
cess to the regulated areas:
DANGER—BENZENE
REGULATED AREA
CANCER CAUSING AGENT
FLAMMABLE—NO SMOKING
AUTHORIZED PERSONNEL ONLY
RESPIRATOR REQUIRED

§ 197.540 Determination of personal
exposure.
(a) General. (1) The employer shall en-
sure that one or more persons in each
type of operation conducted on the ves-
sel which involves the handling of or
potential exposure to benzene are mon-
titored. The monitoring must be con-
ducted so as to determine the rep-
resentative personal exposure of all
persons engaged in each particular op-
eration involving benzene. Monitoring
one vessel of a class is sufficient for all
vessels of that class provided the proce-
dures, equipment, work practices,
cargo, and control equipment are sub-
stantially the same.
(2) For long duration operations,
such as cargo loading or tank entry,
the persons monitored must be mon-
tored to determine the representative
TWA for all persons engaged in the op-
eration. The monitoring must be based
on breathing zone air samples taken
for the duration of the operation or for
eight hours, whichever is less.
(3) For short duration operations,
such as tank gauging or hose connec-
tion and disconnection, the persons
monitored must be monitored to deter-
mine the representative short term ex-
posure level for all persons engaged in
the operation. The monitoring must be based
on 15 minute breathing zone air
samples. Brief period measuring de-
vices may be used to determine wheth-
er monitoring for the short term expo-
sure level is needed.
(4) If cargoes with different benzene
concentrations are being carried on the
vessel, an operation involving the
lower concentration cargoes need not
be monitored if the same type of oper-
ation involving the highest concentra-
tion cargo is monitored and found to be
below the action level.
(5) Initial monitoring must be con-
ducted during weather conditions typ-
cal in the geographic area and during
the time of day the operation is nor-
mally conducted. If the benzene level is
above half the action level for the oper-
ation, additional monitoring must be
conducted under those weather condi-
tions that will maximize benzene expo-
sure, such as low wind, stable air, and
high temperature.
(b) Initial exposure monitoring. When
benzene is first loaded as a cargo on
board a vessel, an initial monitoring of
each type of operation must be con-
ducted to determine accurately the