AD-A070 895 FORECASTING INTERNATIONAL LTD ARLINGTON VA F/G 15/4
A STUDY OF USCG SURVEILLANCE REQUIREMENTS OVER THE NEXT 25 YEAR--ETC(U)
APR 78 M J CETRON, C F MCFADDEN, O H LANDUA DOT-CG-836036-A
UNCLASSIFIED USCG-D-10-79-VOL-2 NL

1 OF 2
AD A070895

REPORT NO. CG-D-10-79 (APPENDICES)

LEVEL III

A070894

(12)

SC

A STUDY OF USCG SURVEILLANCE REQUIREMENTS OVER THE NEXT 25 YEARS AND DEVELOPMENT OF A SURVEILLANCE R&D PROGRAM

FORECASTING INTERNATIONAL, LTD.
1001 NORTH HIGHLAND STREET
ARLINGTON, VIRGINIA 22201

AD A070895

APRIL 1979

FINAL REPORT

VOLUME 2: APPENDICES

Document is available to the U.S. Public through the
National Technical Information Service,
Springfield, Virginia 22161

DDC FILE COPY

DDC
RECEIVED
JUL 6 1979
D

PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD
OFFICE OF RESEARCH AND DEVELOPMENT
WASHINGTON, D.C. 20590

79 07 05 046

U.S.C.G. Report No. CG-D-10-79 (APPENDICES) VOL. II "A STUDY OF USCG SURVEILLANCE REQUIREMENTS OVER THE NEXT 25 YEARS AND DEVELOPMENT OF A SURVEILLANCE R&D PROGRAM" April 79

NOTICE

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

The contents of this report do not necessarily reflect the official view or policy of the Coast Guard; and they do not constitute a standard, specification, or regulation.

This report, or portions thereof may not be used for advertising or sales promotion purposes. Citation of trade names and manufacturers does not constitute endorsement or approval of such products.

(10) M. J. /Cetron, C. F. /McFadden, O. H. /Landua, S. E. /Sugarek R. A. /Ferraiolo

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
CG-D-10-79 (APPENDICES)		

(6) A Study of USCG Surveillance Requirements Over the Next 25 Years and Development of A Surveillance R&D Program. Volume 2. Appendices.

(11) April 1979

4. Title and Subtitle

5. Report Date

6. Performing Organization Code

8. Performing Organization Report No.

(and) 7. Author(s) ~~M.J.Cetron, C.F.McFadden, O.H.Landua,~~ S.E.Sugarek, R.A.Ferraiolo, M.A.Freese, N.Nisenoff, M.A.Clayton

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Forecasting International, Ltd. 1001 North Highland Street, P. O. Box 1650 Arlington, Virginia 22210	11. Contract or Grant No. (15) DOT-CG-836036-A
12. Sponsoring Agency Name and Address Commandant (G-DSA-3/TP44) U. S. Coast Guard Washington, D. C. 20590	13. Type of Report and Period Covered (9) Final Report, October 1978-April 1979
(12) 146 p.	14. Sponsoring Agency Code

15. Supplementary Notes

(18) USCG (19) D-10-79-VOL-2

16. Abstract

The objectives of this study were to provide a multimission assessment of possible Coast Guard surveillance requirements over the next 25 years in 5-year increments; and to develop a Coast Guard surveillance R&D program. The recommended program was to consider likely future demands on USCG surveillance capabilities and develop a time-phased program which would allow the Coast Guard to respond to changing demands in a timely fashion. Thus the first phase of the analysis concentrated on identifying and assessing the impact of future trends and events which could affect surveillance requirements. A list of potential events relevant to Coast Guard surveillance requirements was developed. These major events were then evaluated via a Delphi, with the participation of experts in a variety of appropriate fields. The Delphi panel established estimated dates by which each event would have a high probability of occurrence. A Requirements Model was then constructed to quantitatively assess the time-phased, relative importance of each of the identified current and future Coast Guard surveillance requirements, by Program and overall. Once the relative importance of each surveillance requirement was established, a survey of current and future available technology was undertaken, to determine current development status, current level of application, pace of development, efficacy in meeting each surveillance requirement. Using cross-relevance matrices, a gap analysis was conducted to determine the efficacy of the technologies, as currently applied and potentially available, in meeting the most important surveillance requirements. The result was a determination of the relative importance of the technologies for Coast Guard research and development. A broad program was then structured utilizing the output of the gap analysis and insights gained during the evaluation of technologies.

17. Key Words	18. Distribution Statement
Surveillance Requirements Surveillance Technologies Technology Transfer R&D Planning Remote Sensing	

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified (Separately Bound Vol. 3, SECRET-NOFORN)	UNCLASSIFIED		

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

390 586

VOLUME 2: APPENDICES

TABLE OF CONTENTS

APPENDIX	TITLE	PAGE
A	Trends Affecting Future Coast Guard Surveillance Requirements	A-1
B	Event Impacts on Program Activities	B-1
C	Consensor Information and Instructions	C-1
D	Results of the Modified Delphi Conference	D-1
E	Surveillance Information Element Weights by Program Activity	E-1
F	Surveillance Requirements Model Inputs	F-1
G	Surveillance Requirements Model Results by Operating Program	G-1
H	Detailed Surveillance Requirements in Rank Order	H-1
I	Surveillance Requirements Model: Sensitivity Analysis	I-1
J	Digests of Surveillance Technologies (U) - Classified Contained in Volume 3.	
K	Surveillance Technologies: Supplementary Considerations (U) - Classified. Contained in Volume 3.	
L	Emerging Surveillance Systems (U) - Classified. Contained in Volume 3.	
M	Surveillance Technologies Model	M-1

Accession For
NTIS GRA&I
DDC TAB
Unannounced
Justification
By
Distribution/
Availability Codes
Dist | Avail and/or special
A

APPENDIX A

TRENDS AFFECTING FUTURE COAST GUARD SURVEILLANCE REQUIREMENTS

I. Environmental Trends

1. Increasing public and government awareness and planning in terms of environmental consequences and implications of all acts (2, 1, 4).

    a. Regulations from agencies like EPA becoming broader in range and application (3).

    b. Probable establishment of international environmental quality standards for air and water (1).

2. Changing approaches to issues of environmental management as a consequence of increasing knowledge base (2, 3).

    a. Increasing knowledge base is expected to increase predictive, preventive, and reactive capabilities (3).

    b. Shift in approach from remedial to preventive measures (2).

    c. Greater emphasis is expected on regulation and enforcement of regulations (1).

3. National and global needs for energy and materials may be in conflict with environmental concern (2, 4).

    a. Environmental disruptions are expected to become a rapidly increasing factor of conflict and tension in international relationships (2).

    b. Waste management is expensive. As a result, less developed countries and less efficient businesses have difficulty facing environmental controls (3).

4. Accidental and incidental waste disposal in oceans may receive more attention (2).

    a. Increasing control and regulation of ocean dumping.

    b. Increasing control over cleaning of vessels and effluent pumped overboard (3).

5. Expected increase in shipment of environmentally hazardous materials, such as chemicals and oil, will increase the danger of environmental pollution (5).

6. Increasing awareness of environmental impacts of energy extraction.

    a. Nuclear electric power plants will result in increasing amounts of thermal pollution and accidental discharge of radioactive compounds (2, 4).

    b. Increasing numbers of oil drilling platforms are anticipated (1).

    c. Deep sea mining is expected to increase (1).

7. Environmental trends in coastal zone management may affect USCG pollution abatement responsibility (4).

    a. Increasing amounts of superstructure construction within coastal zone (4).

    b. Increased recreational activity in coastal zone (4).

    c. Anticipated growing need for protection of fisheries (4).

    d. Possible use of zoning concepts and "protected areas" to serve as preserves of the natural state for purposes of scientific and technological development (3).

    e. Increasing demand for mineral resources (4).

    f. Growing need for enforcement of regulations concerning extraction of offshore mineral resources (1).

    g. Increasing numbers of mariculture ventures (1).

8. Increased incidence of oil spills may create significant environmental hazards (5).

II. Political Trends

1. Increasing political change is expected resulting from a quest for materials (energy-producting, food, minerals) (5).

   a. Increasing alliances and agreements which may be both stabilizing and destabilizing (5).

   b. Increasing number of global "concerns", (such as international regulation of sea resources) (5).

   c. Possible conflicts over ownership rights in regard to scarce materials (2).

2. Conflict is anticipated over development of ocean regime. Many unresolved issues include: pollution, fisheries conservation, freedom of navigation, territorial and economic zone boundaries, sea-mining and Law of Sea Treaty (1, 2).

3. Increasing potential for armed conflict and/or terrorism (1).

   a. Increased potential for armed conflict or warfare in general (5).

      (1) New step-up in U.S. arms race (2).

      (2) Increasing acts of international terrorism (1).

      (3) Further development of weapons systems (1).

   b. Increasing potential for armed conflict related to marine environment.

      (1) Increasing arms sales related to marine environment (4, 2).

      (2) It is expected that major sea control forces will be used to protect access to deep ocean resources (5).

4. Coastal zone management issues.

   a. Possible jurisdictional controversy between various levels of government over management of coastal zone (2, 3, 4).

      (1) Intra-Federal controversy

      (2) Federal/State controversy

      (3) State-State controversy. Variations between state laws may become increasingly difficult to accommodate. It is possible that some form of national standardization will occur (2).

   b. Possible controversial issues in regard to traffic and control (2).

      (1) A questioning of free right of access and passage may result in possible impedence of commercial navigation (2, 4).

      (2) Increasing problem of traffic control in domestic waterways may occur (1, 2).

      (3) Increasing number of foreign vessels may continue into domestic waterways (1, 2).

   c. Possible development of sea zoning and allocation systems (2).

      (1) Possible jurisdictional controversy over breadth of continental shelf (4).

      (2) Possible conflict over unequal distribution and exploitation of sea resources may lead to disagreements concerning their ownership and extraction (5, 2).

5. Treaty law enforcement issues.

   a. Law of Sea Treaty may become ratified (1).

   b. Clarification and development of U.S. responsibilities in Arctic areas may occur (1).

(1) Polar warfare issues (1).

(2) Clarification of the specific responsibilities of the CG in Arctic areas in regard to facilitation of commerce, search and rescue and national defense (1).

6. Government management issues (not limited to coastal zone).

a. U.S. government agencies are expected to reorganize more frequently. This may result in more organizations overall, and changes in existing organizations (1, 2, and 5).

b. Domestic political activities will include issues concerning drugs and the environment. For example, the political impact of environmental groups will increase, and political changes may affect whether drugs will be legalized, etc. (5).

c. Possible problems with sustainability of voluntary, nonunionized military forces (2).

d. Increasing governmental regulation of industries (5).

7. Development of military use of coastal zone.

a. The traditional military view that large marine bodies constitute defensive barriers (the moat view) will increasingly give way to the view that the marine bodies are a form of cover which make certain types of defense even more difficult (2).

b. Growing technological advances in new marine defense strategies are expected (2).

8. Unresolved issues relating to development of fisheries and the enforcement of fishing (1, 3).

9. Issues relating to increasing emphasis on trade and shipping.

    a. Increased shipping capacity is expected (1).

    b. Growing need for construction standards for foreign vessels (1).

10. Legal and jurisdictional conflicts may emerge related to mineral extraction (1).

11. Protection of nation's borders from illegal entry (1, 3).

12. Possible changing policy of CG military role.

    a. Protection of 200-mile economic zone from terrorism (1, 4).

    b. Crime and law enforcement role of CG within 200-mile economic zone.

        (1) Port security problems (1).

        (2) Brush fires (1).

        (3) Inspection standards for foreign ships (1).

    c. CG crime and law enforcement role outside of 200-mile zone, including smuggling and hijacking may be redefined (1).

    d. Prevention and safety operations may change (2).

        (1) Anti-terrorism and anti-saboteur operations (1).

        (2) Surveillance and enforcement of public safety (2).

III. SOCIETAL TRENDS

1. Rising affluence is expected and may result in increasing sophistication, sexual equality and service orientation of U.S. labor force (5).

2. Expected long term increase in amount of leisure time (4, 2).

    a. Increase in recreational activities in general (4).

    b. Increase in leisure-recreational-related expenditures (4).

    c. Increase in recreational marine activities and expenditures. Increasing use of submersibles for private and commercial use (4).

3. Expanding population is expected (1, 4).

4. Possible continuing geographical shifts near water, such as coastal areas, inland lakes, Great Lakes and rivers (1).

5. Increasing crime of all kinds is expected (2, 3).

6. Possible lower societal priority for military and paramilitary may result in social pressures to reduce manning of military or para-military services (4).

7. Increasing use of drugs and an increase in drug traffic (1,4).

8. Continuing growth of recreational use of marine environment (3).

    a. Greater use of boats and submersibles for private and commercial use (1).

    b. Greater need for law enforcement (3).

        (1) It is anticipated that greater surveillance requirements related to drug traffic and other contraband by water will be necessary (2).

        (2) A greater need for protection against antisocial technologies is expected (3).

9. Increasing construction and use of offshore structures.

   a. Possible inhabitation of permanent installations (such as underwater parks for tourism) (1).

   b. Possible use of private submersibles for research, mineral exploitation, underwater commercial operations (1).

10. Societal trends related to coastal zone management issues.

   a. Increased regulatory responsibilities relating to recreational activities and non-recreational activities (1).

   b. Law enforcement and prevention of crime (3).

   c. Crowding and congestion in coastal and territorial waters may present problems of movement control (3).

IV. Economic Trends

1. Growing interdependence of world economy is expected (5).

    a. Dependence and competition for national resources may occur.

        (1) Shortages of raw materials may result in increased trade for foreign sources and markets (5).

        (2) Increasing value of marine resources may increase the economic stake of ownership rights to marine resources (3).

    b. Possible continued growth of multinational firms (5).

2. Shortages in raw materials may result in growing dependence upon international trade (1, 5).

3. Possible protectionism issues.

    a. Rising problem of U.S. economy's capability to compete favorably in international markets may give rise to issues of protectionism and international trade agreements (3).

    b. Possible increase in protectionist attitudes and measures (5).

4. Possible increasing capital constraints in U.S. (5).

    a. Expected increasing competition for U.S. government funds (5).

    b. Increasing demands for capital funds to meet increasing costs may not be met. As a result, the CG may not have sufficient funds to repair, upgrade and expand port facilities (1).

5. U.S. economy is expected to become increasingly dependent upon foreign sources for raw materials (2).

6. Increasing emphasis for offshore development (3).

   a. The probable need for self-sufficiency in terms of resources may accelerate offshore resource development (3).

   b. U.S. resource needs may lead to exploration of deep sea resources (3).

7. Some coastal zone management issues.

   a. Increasing pressures to assure open navigatability of all important waterways (inland and oceanic access) year round (1, 2).

   b. Protection and law enforcement issues in economic zone.

      (1) Possible foreign infringements in U.S. economic zone (4).

      (2) New regulations may give USCG additional responsibilities in the inspection of offshore equipment such as drilling rigs, nuclear power plants, and other offshore assets (1).

8. Increased shipping and waterborne transportation is expected (1).

   a. Expected increased demands for improved shipbuilding technology of a commercial nature (3, 2).

   b. Increasing number and size of vessels (4).

   c. Increased use of domestic inland waterway system (1).

   d. It is anticipated that problems may arise associated with an internationally dispersed shipbuilding industry without related internationally agreed upon equipment standards and enforcement procedures (3).

e. Expected increase in the number of problems related to cargo inspection for permissibility and legality (3).

f. Possible need for control of entry to vessels into certain areas as a result of concern for safety against anti-social technologies (3).

g. Increasing imports of crude oil, products and natural gas may require more and larger ships (1, 2).

9. Issues related to the exploitation of coastal zone.

a. Exploitation of the ocean for materials such as ocean mining, etc. may increase CG economic zone security requirements (4).

b. Some energy extraction trends may increase CG economic zone security requirements (4).

(1) Possible exploitation of the ocean for oil and gas is expected (4).

(2) Possible offshore location of power plants (4).

(3) Many new energy plant facilities may continue locating on water-side sites to use low cost water transportation (1).

10. Greater reliance may be placed on the ocean as a food source (4).

a. Development and protection of open sea mariculture is expected (4).

b. Possible development of kelp beds (2).

c. Expected growing need for protection of fisheries from over fishing (4).

11. Continued worldwide economic growth and development is expected (2,5).

a. Continued rising GNP in both developed and developing nations is expected (5).

b. Increasing disparity of per capita income between developed and lesser developed nations may continue (5).

V. Technological Trends

1. Increased general stimulation of technology and innovation is expected.

   a. U.S. may not be able to maintain technological leadership (2).

   b. Technological advances allowing prediction and control of weather are being developed (5).

   c. Advances in oceanography may broaden opportunities to exploit ocean resources (2).

2. General engineering improvements may include advances that make machinery less susceptible to environmental extremes. (Steel alloys that produce adherent oxides which improve weatherability may be developed.) (2).

3. Satellite utilization trends.

   a. Satellite computer systems may proliferate to produce computer networks (2).

   b. Improvement of intelligence-gathering effectiveness from satellites by means of development of photographic techniques may be developed (2).

   c. Further development of IR techniques is anticipated (2).

   d. It is expected that SEASAT-satellite will provide all-weather global monitoring. It may also be used for surveillance of chemical and oil pollution, location of ships, yields of fish, and wave and weather conditions (4).

   e. Evolution of comprehensive monitoring systems and identification systems is expected. Satellite tracking is becoming more useful to monitor ships for pollutant identification (3, 4).

   f. The possibility exists of orbiting space stations which can serve as nuclear launching platforms, surveillance stations, etc, (2).

4. Trends in geological identification techniques.

   a. It is expected that advances in geological sciences and space monitoring may provide the capability to locate yet unknown resource reserves (2).

   b. It is expected that the development of high precision of macro-measuring techniques may facilitate construction of geological maps of OCS shelf (4).

5. Computers and cybernetics (1).

   a. General engineering developments in the field of computers and cybernetics.

      (1) Improvement of visual and audio data input techniques (2).

      (2) Expansion of large scale integrated technology multiplexing may enable multiple uses and intercomputer interaction (2).

      (3) Expected increase in speed and data handling of computers (2).

      (4) Possible increased use of micro-computers (2).

      (5) Possible increase in security capabilities in the time-shared systems (2).

      (6) EDP systems are becoming increasingly capable of performing simultaneously a variety of different functions (2).

      (7) Development of flexible small software packages for use in solving layman-language problems are expected (2).

   b. Possible general uses of computers and cybernetics in other areas.

      (1) Computer simulation may be used in construction of hardware entities, such as large engineering projects (2).

(2) Cybernetic systems may be developed to replace many human-machine systems, such as navigation, assembly lines, weapons, construction (2).

(3) Computer and sensor technologies may be applied to problems of mine safety (2).

6. Expected development of port facilities and floating cities.

a. Problems relating to port facilities may arise.

(1) Development of waterfront facilities for handling hazardous materials may occur (2).

(2) Possible development of port management vessel traffic services and information systems (2, 5).

(3) Possible development of port facilities for larger ships (2).

b. Growth of sea communities and other types of offshore facilities.

(1) An increase in number of offshore facilities (excluding petroleum drilling operations) is expected (5).

(2) Possible growth of surface-type facilities. Ocean platforms may be used for: large sea stations for airports, shipping terminals, floating plants and cities, deep water ports and power plants (5,2).

(3) Expected development of sub-surface operations for industry (mining, food) and recreation (underwater parks) (2).

7. Food production from marine sources is expected to increase (2,5).

a. Mariculture is expected to become a major industry (4).

b. Application of surveillance/monitoring technologies to fisheries are expected to permit determination of accurate inventories of stocks of fish (2).

c. Water desalination is feasible (2).

8. Technological advances in mineral extraction are expected to lead to increases in offshore/deep-sea mining for minerals (4).

   a. Advances in drilling technologies are expected (2).

   b. Possible development of technologies for scooping raw materials from surface of seabed (2).

   c. Prospective excavation-related advances including rock melting and rock shattering with electron beams and nuclear blasting may have large impact (2).

9. Improvements in energy extraction and distribution, and search for new sources of energy are expected (1).

   a. Increasing advances in offshore oil exploration may permit greater exploitation of offshore gas and oil resources at greater depths (4, 5).

   b. Improvements in coal mining techniques are expected (1).

   c. Expected improvements in and development of offshore power plants and floating nuclear power plants (1).

   d. Improvements in power transmission

      (1) Improvements may be made in the development of high-voltage electricity transmission (1).

      (2) Technological advances in regard to power transmission may develop capabilities so that underground (super cold) transmissions will be possible at larger power levels (2).

(3) Possible expansion of energy extraction for alternative sources from seabed and ocean, including oil and gas, coal, thermal gradient energy, solar energy of surface, tidal energy of coastlines, wind energy at surface, and geothermal energy from seabed (2).

(4) Increasing use of subsea pipelines for the transport of hydrocarbons may be laid in ever increasind depths of water (5).

10. Military uses of marine environment.

a. Possible change in approach to uses of military technologies for both underwater and surface operations, from idea of sea as a barrier or combat zone, to the idea that the sea as a cover within which to operate military capabilities (3).

b. Expected development of cybernetic weapons systems (2).

c. Possible discouraged development of large scale use of submersibles, except for direct military purposes (ICBM launching submarines) (2).

d. Possible development of monitoring systems for strategic weapons capability and detection(2).

11. Trends in antisocial and terrorist technologies.

a. Increasing development of antisocial technologies (3).

b. Technologies for the commission of violations are growing at a rate, such that violators may be equal to or ahead of technologies for detection and apprehensions of the violations (3).

12. Ships and shipping, marine engineering, and transportation technology trends.

a. General marine engineering trends.

(1) Technological advances in centralized and automated engine control systems may be installed in large ships (2).

(2) Technological advances are expected which allow construction of new marine vehicles or marine vehicles for new uses, such as large hovercraft surface effect ships, hydrofoils, tanker submarines, amphibian vehicles (2).

(3) Extensive use may be made of larger ships (super cargo ships) (4,2,5).

(4) Significantly higher speeds in water vehicles expected (2).

(5) Expected advances in navigation systems capability for real time locating data (2).

b. Possible advances in transportation technology.

(1) Passengers and cargo may be transported across ocean by surface effect ships (hovercraft) and/or hydrofoil Ships (2).

(2) Technological advances in cargo handling may result in development of heavy lift helos as a competitive mode of cargo handling (2).

(3) Inland waterways may be used as high speed marine highways by commercial hovercraft in large numbers by 2000 (2).

(4) Possible development of enclosed docks with water toxic to barnacles (2).

13. Possible improvements in communications capabilities (2).

a. Increased use may be made of automated navigation systems in ships, including both inertial and sensing systems. Fail-safe devices may be increasingly used (2).

b. Development of capabilities for communications of different forms over phone is expected (2).

c. Possible widespread and economical use of lasers in communications (2).

d. Micro-miniaturization may lead to efficient and effective communications relay stations (2).

e. The development of response information systems may improve CG's ability to respond to hazardous pollution incidence (2, 1).

f. Communications capabilities of ships and aircraft may improve significantly.

(1) Possible development of earth orbiting satellite communications relay stations for microwave communications between surface, airborne, and some subsurface vehicles and stations may improve communications (2).

(2) The development of new techniques for modulating electromagnetic radiation may improve communications (2)

(3) Developments in computer-based integrated tactical data systems may improve communications among units operating in same sea area (2).

(4) Greater use of massive underground extremely low frequency radio transmitters may permit worldwide coverage of even submerged units (2).

14. Surveillance/monitoring (3).

a. SEASAT satellite may be applied to economic zone surveillance activities (4).

b. Possible trends in surveillance and monitoring (2).

(1) Possible development of collision avoidance systems.

(2) Applications of surveillance and monitoring technologies may be used to oversee marine activities-pollution (2).

(3) Expected increased need to detect and inspect hazardous cargoes (2, 3).

(4) Expected growing need for the inspection and surveillance of containers for dangerous cargo or illegal contraband (2).

15. Trends in the control of waste disposal include technological alternatives to the disposal of municipal sludge and industrial residues (3).

16. Increasing technology developments to control pollution are expected (2).

a. Possible development of new technologies for the recovery of pollutants from sea surface and below sea surface (2).

b. Possible development of new techniques for neutralizing the effect of pollutants on the sea surface and below sea surface (2).

c. Possible development of new technologies for transferring or dissipating heat pollution from nuclear power plants to the open ocean will be developed (2).

KEY TO SOURCES

(1) Commandant Instruction 5000.2B, July 18, 1977, Commandant's Long-Range View.

(2) "Emerging Environments, Roles, and Activities of the U. S. Coast Guard to 2000 AD", Charles Williams, Inc.

(3) Charles Williams Law Enforcement Study, 1978.

(4) "An Analysis of the Relevant Factors and Forecast of Events Affecting U. S. Offshore Management and Security in the 200-Mile Zone", M. J. Cetron, Forecasting International, Ltd.

(5) Phase I Draft Report on USCG Contract DOT-CG-60320-A including Appendices.

At each probability (0.1, 0.5, 0.9), a bar chart of responses (weighted by the respondent's confidence in his estimate) is shown. All

APPENDIX B

EVENT IMPACTS ON PROGRAM ACTIVITIES

KEY TO COLUMN HEADINGS

NO.	Unique identification number.
EVNT	Event number (See Tables 5-3 and 5-4).
SN	Scene (See Table 5-4).
RANK	Relative importance of the event to the Coast Guard (See Tables 5-3 and 5-4).
WT.A	Weight of the event normalized to 1000 (See Tables 5-3 and 5-4).
PROG	Coast Guard Operating Program abbreviation (See Table 3-1).
WT.	Program weight normalized to 1000 (See Table 6-3).
PA	Program Activity code (See Table 3-3).
PA SCR	Program Activity score. Estimated impact of the event on the Program Activity:

Major	(8)
Moderate	(4)
Minor	(2)

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
001	0001	2	31	16	AN	88	1	2
002	0001	2	31	16	AN	88	3	2
003	0001	2	31	16	CVS	117	14	8
004	0001	2	31	16	MEP	59	40	4
005	0001	2	31	16	PSS	107	75	2
006	0002	1	12	22	AN	88	1	2
007	0002	1	12	22	AN	88	3	2
008	0002	1	12	22	CVS	117	14	8
009	0002	1	12	22	MEP	59	40	4
010	0002	1	12	22	PSS	107	80	2
011	0003	1	59	-9	SAR	123	90	8
012	0004	3	4	30	AN	88	1	4
013	0004	3	4	30	AN	88	2	4
014	0004	3	4	30	AN	88	3	4
015	0004	3	4	30	AN	88	4	4
016	0004	3	4	30	AN	88	5	4
017	0004	3	4	30	MOMP	191	51	8
018	0004	3	4	30	MOMP	191	53	8
019	0004	3	4	30	PSS	107	75	2
020	0004	3	4	30	PSS	107	76	4
021	0004	3	4	30	PSS	107	77	4
022	0004	3	4	30	PSS	107	78	4
023	0004	3	4	30	PSS	107	79	4
024	0004	3	4	30	PSS	107	80	4
025	0004	3	4	30	SAR	191	90	4
026	0004	3	4	30	SAR	191	91	4
027	0005	1	60	-12	ELT	113	20	8
028	0005	1	60	-12	SAR	123	90	4
029	0006	3	56	8	MEP	59	40	4
030	0006	3	56	8	MEP	59	42	4
031	0006	3	56	8	SAR	123	90	2
032	0006	3	56	8	SAR	123	91	2
033	0006	3	56	8	SAR	123	92	2
034	0007	2	42	14	ELT	113	22	2
035	0007	2	42	14	MEP	59	40	2
036	0007	2	42	14	MEP	59	41	4
037	0007	2	42	14	PSS	107	77	2
038	0007	2	42	14	RBS	47	87	4
039	0008	3	34	16	PSS	107	77	8
040	0008	3	34	16	PSS	107	78	8
041	0008	3	34	16	PSS	107	80	8
042	0009	1	22	18	MEP	59	41	8
043	0009	1	22	18	PSS	107	77	2
044	0009	1	22	18	PSS	107	78	4
045	0009	1	22	18	PSS	107	79	4
046	0010	2	1	31	MEP	59	40	2
047	0010	2	1	31	MEP	59	42	2
048	0010	2	1	31	PSS	107	77	4
049	0010	2	1	31	PSS	107	78	4
050	0010	2	1	31	SAR	123	91	2
051	0011	1	22	18	AN	88	1	2
052	0011	1	22	18	AN	88	3	2
053	0011	1	22	18	AN	88	4	2
054	0011	1	22	18	AN	88	5	2
055	0011	1	22	18	MEP	59	40	8
056	0011	1	22	18	PSS	107	77	2
057	0011	1	22	18	PSS	107	78	4
058	0011	1	22	18	PSS	107	79	4
059	0011	1	22	18	SAR	123	91	2
060	0012	1	17	21	AN	88	3	2
061	0012	1	17	21	AN	88	4	2
062	0012	1	17	21	AN	88	5	2
063	0012	1	17	21	MEP	59	40	8
064	0012	1	17	21	PSS	107	77	2
065	0012	1	17	21	PSS	107	78	4
066	0012	1	17	21	PSS	107	79	4
067	0013	1	45	14	CVS	117	15	8
068	0013	1	45	14	MEP	59	40	8
069	0014	2	21	19	AN	88	1	2
070	0014	2	21	19	AN	88	3	2
071	0014	2	21	19	AN	88	4	2
072	0014	2	21	19	AN	88	5	2
073	0014	2	21	19	PSS	107	77	2
074	0014	2	21	19	PSS	107	78	4
075	0014	2	21	19	PSS	107	79	4
076	0014	2	21	19	SAR	123	91	2
077	0015	1	22	18	AN	88	3	2
078	0015	1	22	18	AN	88	5	2
079	0015	1	22	18	CVS	117	13	4
080	0015	1	22	18	CVS	117	14	4

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
081	0015	1	22	18	CVS	117	15	4
082	0015	1	22	18	MEP	59	40	4
083	0015	1	22	18	MEP	59	42	2
084	0015	1	22	18	PSS	107	77	2
085	0015	1	22	18	PSS	107	80	2
086	0016	3	22	18	MEP	59	40	2
087	0016	3	22	18	PSS	107	75	2
088	0016	3	22	18	PSS	107	79	4
089	0017	2	28	18	CVS	117	13	2
090	0017	2	28	18	MEP	59	40	4
091	0017	2	28	18	PSS	107	77	2
092	0018	1	8	24	PSS	107	79	8
093	0018	1	8	24	PSS	107	80	8
094	0019	1	13	22	CVS	117	13	2
095	0019	1	13	22	ELT	113	22	8
096	0019	1	13	22	MEP	59	40	4
097	0019	1	13	22	PSS	107	77	4
098	0019	1	13	22	PSS	107	80	4
099	0020	1	17	21	AN	88	1	4
100	0020	1	17	21	AN	88	3	4
101	0020	1	17	21	MEP	59	40	2
102	0020	1	17	21	PSS	107	79	2
103	0021	1	28	18	SAR	123	92	8
104	0022	3	22	18	ELT	113	20	4
105	0022	3	22	18	ELT	113	21	4
106	0022	3	22	18	MEP	59	40	4
107	0022	3	22	18	SAR	123	90	2
108	0022	3	22	18	SAR	123	91	2
109	0023	3	1	31	AN	88	1	4
110	0023	3	1	31	AN	88	2	4
111	0023	3	1	31	AN	88	3	4
112	0023	3	1	31	AN	88	4	4
113	0023	3	1	31	AN	088	5	4
114	0023	3	1	31	MOMP	191	50	2
115	0023	3	1	31	MOMP	191	51	8
116	0023	3	1	31	PSS	107	75	2
117	0023	3	1	31	PSS	107	76	4
118	0023	3	1	31	PSS	107	77	4
119	0023	3	1	31	PSS	107	78	4
120	0023	3	1	31	PSS	107	80	4

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
121	0023	3	1	31	SAR	123	90	4
122	0023	3	1	31	SAR	123	91	4
123	0024	1	42	14	MEP	59	40	4
124	0024	1	42	14	MEP	59	41	4
125	0024	1	42	14	PSS	107	76	2
126	0024	1	42	14	PSS	107	77	2
127	0024	1	42	14	PSS	107	79	2
128	0024	1	42	14	SAR	123	90	2
129	0024	1	42	14	SAR	123	91	2
130	0025	2	1	31	AN	88	1	4
131	0025	2	1	31	AN	88	2	4
132	0025	2	1	31	AN	88	3	4
133	0025	2	1	31	AN	88	4	4
134	0025	2	1	31	MOMP	191	51	8
135	0025	2	1	31	MOMP	191	53	8
136	0025	2	1	31	PSS	107	75	2
137	0025	2	1	31	PSS	107	76	4
138	0025	2	1	31	PSS	107	77	4
139	0025	2	1	31	PSS	107	78	4
140	0025	2	1	31	PSS	107	79	4
141	0025	2	1	31	PSS	107	80	4
142	0025	2	1	31	SAR	123	90	4
143	0025	2	1	31	SAR	123	91	4
144	0026	2	10	23	MEP	59	40	4
145	0026	2	10	23	MEP	59	41	4
146	0026	2	10	23	PSS	107	76	2
147	0026	2	10	23	PSS	107	77	2
148	0026	2	10	23	PSS	107	79	2
149	0026	2	10	23	SAR	123	90	2
150	0026	2	10	23	SAR	123	91	2
151	0027	1	30	17	AN	88	1	4
152	0027	1	30	17	AN	88	2	2
153	0027	1	30	17	AN	88	3	4
154	0027	1	30	17	AN	88	5	2
155	0027	1	30	17	BA	16	10	2
156	0027	1	30	17	IO	110	30	8
157	0027	1	30	17	MEP	59	40	2
158	0027	1	30	17	MEP	59	41	2
159	0027	1	30	17	MSA	29	61	8
160	0027	1	30	17	PSS	107	77	4

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
161	0027	1	30	17	PSS	107	79	2
162	0027	1	30	17	SAR	123	90	2
163	0027	1	30	17	SAR	123	91	2
164	0028	2	47	13	AN	88	1	4
165	0028	2	47	13	AN	88	2	2
166	0028	2	47	13	AN	88	3	4
167	0028	2	47	13	BA	16	10	2
168	0028	2	47	13	IO	110	30	8
169	0028	2	47	13	PSS	107	77	4
170	0028	2	47	13	PSS	107	79	2
171	0029	3	35	15	BA	16	10	2
172	0029	3	35	15	IO	110	30	2
173	0029	3	35	15	MEP	59	40	2
174	0029	3	35	15	MEP	59	41	2
175	0029	3	35	15	PSS	107	75	2
176	0029	3	35	15	PSS	107	77	2
177	0029	3	35	15	PSS	107	79	4
178	0029	3	35	15	SAR	123	90	2
179	0029	3	35	15	SAR	123	91	2
180	0030	2	5	29	MEP	59	40	2
181	0030	2	5	29	PSS	107	75	2
182	0030	2	5	29	PSS	107	77	4
183	0030	2	5	29	PSS	107	78	4
184	0030	2	5	29	SAR	123	92	2
185	0031	2	22	18	AN	88	1	2
186	0031	2	22	18	AN	88	3	2
187	0031	2	22	18	AN	88	5	2
188	0031	2	22	18	ELT	113	20	4
189	0031	2	22	18	ELT	113	21	4
190	0031	2	22	18	MEP	59	40	4
191	0032	1	42	14	ELT	113	22	4
192	0032	1	42	14	PSS	107	76	8
193	0033	2	35	15	AN	88	1	2
194	0033	2	35	15	AN	88	3	2
195	0033	2	35	15	AN	88	5	2
196	0033	2	35	15	MEP	59	40	4
197	0033	2	35	15	PSS	107	77	2
198	0033	2	35	15	PSS	107	80	2
199	0034	2	58	1	MEP	59	40	-2
200	0034	2	58	1	MEP	59	41	-2

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
201	0034	2	58	1	MEP	59	42	-2
202	0034	2	58	1	PSS	107	75	2
203	0035	1	13	22	AN	88	1	2
204	0035	1	13	22	AN	88	3	2
205	0035	1	13	22	AN	88	5	2
206	0035	1	13	22	ELT	113	21	2
207	0035	1	13	22	MEP	59	40	2
208	0036	1	31	16	MEP	59	40	8
209	0036	1	31	16	MEP	59	41	8
210	0036	1	31	16	PSS	107	77	4
211	0036	1	31	16	PSS	107	78	8
212	0036	1	31	16	PSS	107	79	2
213	0037	3	13	22	AN	88	1	2
214	0037	3	13	22	AN	88	3	2
215	0037	3	13	22	AN	88	5	2
216	0037	3	13	22	MEP	59	40	8
217	0037	3	13	22	PSS	107	75	4
218	0037	3	13	22	PSS	107	77	8
220	0037	3	13	22	PSS	107	80	8
221	0038	2	31	16	AN	88	1	2
222	0038	2	31	16	AN	88	3	2
223	0038	2	31	16	AN	88	5	2
224	0038	2	31	16	CVS	117	13	4
225	0038	2	31	16	CVS	117	14	4
226	0038	2	31	16	CVS	117	15	4
227	0038	2	31	16	MEP	59	40	4
228	0038	2	31	16	MEP	59	42	2
229	0038	2	31	16	PSS	107	77	2
230	0038	2	31	16	PSS	107	80	2
231	0039	2	13	22	AN	88	1	2
232	0039	2	13	22	AN	88	3	2
233	0039	2	13	22	CVS	117	13	4
234	0039	2	13	22	CVS	117	14	4
235	0039	2	13	22	CVS	117	15	4
236	0039	2	13	22	MEP	59	40	4
237	0039	2	13	22	MEP	59	42	2
238	0039	2	13	22	PSS	107	77	2
239	0039	2	13	22	PSS	107	80	2
240	0040	4	38	15	AN	88	3	2
241	0040	4	38	15	AN	88	5	2

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
242	0040	4	38	15	MEP	59	40	8
243	0040	4	38	15	MEP	59	42	8
244	0040	4	38	15	PSS	107	80	2
245	0041	2	49	11	ELT	113	20	4
246	0041	2	49	11	ELT	113	21	4
247	0041	2	49	11	MEP	59	40	4
248	0041	2	49	11	MEP	59	42	4
249	0042	2	45	14	ELT	113	23	4
250	0042	2	45	14	MEP	59	42	4
251	0043	2	5	29	AN	88	1	4
252	0043	2	5	29	AN	88	2	4
253	0043	2	5	29	AN	88	3	4
254	0043	2	5	29	AN	88	4	4
255	0043	2	5	29	AN	88	5	4
256	0043	2	5	29	MOMP	191	50	8
257	0043	2	5	29	MOMP	191	51	8
258	0043	2	5	29	MOMP	191	52	8
259	0043	2	5	29	MOMP	191	53	8
260	0043	2	5	29	PSS	107	75	2
261	0043	2	5	29	PSS	107	76	4
262	0043	2	5	29	PSS	107	77	4
263	0043	2	5	29	PSS	107	78	4
264	0043	2	5	29	PSS	107	80	4
265	0043	2	5	29	SAR	123	90	4
266	0043	2	5	29	SAR	123	91	4
267	0044	1	48	12	ELT	113	2	2
268	0044	1	48	12	PSS	107	77	2
269	0044	1	48	12	PSS	107	80	2
270	0044	1	48	12	SAR	123	92	8
271	0045	3	7	25	ELT	113	22	2
272	0045	3	7	25	RBS	47	87	8
273	0045	3	7	25	SAR	123	90	4
274	0045	3	7	25	SAR	123	91	4
275	0046	3	51	11	AN	88	1	2
276	0046	3	51	11	AN	88	2	2
277	0046	3	51	11	AN	88	3	2
278	0046	3	51	11	AN	88	5	2
279	0046	3	51	11	PSS	107	77	2
280	0047	3	57	7	MEP	59	40	4
281	0047	3	57	7	MEP	59	41	4
282	0047	3	57	7	MEP	59	42	4
283	0047	3	57	7	PSS	107	75	4
284	0048	2	19	20	IO	110	30	8
285	0048	2	19	20	MSA	29	61	4
286	0048	2	19	20	MSA	29	62	2
287	0048	2	19	20	MSA	29	63	2
288	0048	2	19	20	MSA	29	64	2
289	0048	2	19	20	MSA	29	65	4
290	0048	2	19	20	MSA	29	66	4
291	0048	2	19	20	MSA	29	68	2
292	0048	2	19	20	SAR	123	90	4
293	0048	2	19	20	SAR	123	91	4
294	0048	2	19	20	SAR	123	92	4
295	0049	2	35	15	PSS	107	75	2
296	0049	2	35	15	PSS	107	77	4
297	0049	2	35	15	PSS	107	79	8
298	0050	3	10	23	MEP	59	40	2
299	0050	3	10	23	PSS	107	77	2
300	0050	3	10	23	PSS	107	78	2
301	0050	3	10	23	SAR	123	92	2
302	0051	1	51	11	CVS	117	14	8
303	0051	1	51	11	CVS	117	15	8
304	0052	2	38	15	MEP	59	40	4
305	0052	2	38	15	MEP	59	41	4
306	0052	2	38	15	MEP	59	42	4
307	0052	2	38	15	PSS	107	77	4
308	0052	2	38	15	PSS	107	78	4
309	0052	2	38	15	PSS	107	79	4
310	0053	2	49	11	AN	88	1	4
311	0053	2	49	11	AN	88	3	4
312	0053	2	49	11	AN	88	4	2
313	0053	2	49	11	AN	88	5	4
314	0053	2	49	11	CVS	117	13	8
315	0053	2	49	11	CVS	117	14	8
316	0053	2	49	11	CVS	117	15	8
317	0053	2	49	11	MEP	59	40	4
318	0053	2	49	11	PSS	107	75	4
319	0053	2	49	11	PSS	107	77	4
320	0053	2	49	11	PSS	107	78	4
321	0053	2	49	11	PSS	107	79	4

between developed and lesser developed nations may continue (5).

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
322	0053	2	49	11	PSS	107	80	4
323	0054	2	9	24	AN	88	1	2
324	0054	2	9	24	AN	88	3	2
325	0054	2	9	24	CVS	117	13	4
326	0054	2	9	24	CVS	117	14	4
327	0054	2	9	24	CVS	117	15	4
328	0054	2	9	24	MEP	59	40	4
329	0054	2	9	24	MEP	59	42	2
330	0054	2	9	24	PSS	107	77	2
331	0054	2	9	24	PSS	107	79	2
332	0054	2	9	24	PSS	107	80	2
333	0055	3	55	9	ELT	113	22	2
334	0055	3	55	9	PSS	107	76	2
335	0055	3	55	9	PSS	107	77	2
336	0055	3	55	9	PSS	107	79	2
337	0056	4	38	15	AN	88	1	2
338	0056	4	38	15	AN	88	3	2
339	0056	4	38	15	AN	88	4	2
340	0056	4	38	15	AN	88	5	2
341	0056	4	38	15	CVS	117	13	4
342	0056	4	38	15	CVS	117	14	4
343	0056	4	38	15	CVS	117	15	4
344	0056	4	38	15	MEP	59	40	4
345	0056	4	38	15	MEP	59	42	4
346	0056	4	38	15	PSS	107	75	4
347	0056	4	38	15	PSS	107	77	4
348	0056	4	38	15	PSS	107	78	4
349	0056	4	38	15	PSS	107	79	4
350	0056	4	38	15	PSS	107	80	4
351	0057	4	54	9	AN	88	1	2
352	0057	4	54	9	AN	88	3	2
353	0057	4	54	9	MEP	59	40	2
354	0057	4	54	9	PSS	107	79	2
355	0058	1	53	10	AN	88	3	2
356	0058	1	53	10	CVS	117	13	4
357	0058	1	53	10	CVS	117	14	4
358	0058	1	53	10	CVS	117	15	4
359	0058	1	53	10	MEP	59	40	2
360	0058	1	53	10	MEP	59	42	2
361	0058	1	53	10	PSS	107	75	2

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR
362	0058	1	53	10	PSS	107	77	2
363	0058	1	53	10	PSS	107	80	2
364	0059	4	38	15	MEP	59	40	2
365	0059	4	38	15	MEP	59	41	2
366	0059	4	38	15	PSS	107	77	2
367	0059	4	38	15	PSS	107	78	8
368	0060	2	19	20	AN	88	3	2
369	0060	2	19	20	AN	88	4	2
370	0060	2	19	20	AN	88	5	2
371	0060	2	19	20	MEP	59	40	4
372	0060	2	19	20	PSS	107	75	2
373	0060	2	19	20	PSS	107	77	4

APPENDIX C

CONSENSOR INFORMATION AND INSTRUCTIONS

The CONSENSOR is an electronic device which improves group communication and helps meetings convened for problem-solving and decision-making achieve their goal.

The CONSENSOR is a tool designed to assist the decision-making process. Used properly, the CONSENSOR belongs less in the final phase of decision-making and more in the earlier exploratory, consultative, and deliberative phase in which contributions are sought from a relatively large number of people. The purpose of this phase, and therefore the purpose of the CONSENSOR, is to lead to better-informed decisions.

Increasingly, the complexity and interrelations of today's organizations demand a participatory style of planning and management. The day of the insulated decision-maker is no more. With this era of group deliberation, various techniques to help aggregate individual opinions and ideas into unambiguous expressions of collective judgment have evolved. The CONSENSOR is an important tool to help make these techniques work.

The CONSENSOR is not a substitute for the lively give-and-take, the spirited exchange of opinion, in a successful meeting. It augments the verbal exchanges by helping to bring out and clarify what is apt to be ignored or left unclear in these exchanges. It makes meetings more productive by helping to insure clearer results and a faster pace of deliberation.

The CONSENSOR helps achieve consensus and improve communication in meetings in the following ways:

Aims group toward consensus by

1.) Revealing the full range of opinions on an issue.
2.) Establishing unambiguously whether a consensus exists on an issue.
3.) Establishing unambiguously a group's collective preference within a range of options under consideration.
4.) Establishing the strength or weight of a group's collective preferences.
5.) Uncovering elements of consensus within the variety of opinions and attitudes represented by a group.
6.) Enabling recording and monitoring of a meeting's progress.

Facilitates discussion and improves communication by

1.) Encouraging maximum participation.
2.) Sharpening a group's focus on the issue under discussion.
3.) Minimizing emotional bias and other forms of "noise" which interfere with the clear flow of discussion and information.
4.) Helping to remove ambiguities often associated with group deliberation and collective judgment.
5.) Identifying the existence of misunderstanding or lack of clarification of an issue.

Other important attributes of the CONSENSOR which can make meetings more effective include:

1.) Individual opinion can be expressed anonymously.
2.) Numerous discussion items can be considered rapidly.
3.) Participants in a meeting can express shades of opinion in addition to the normal "yes" and "no".
4.) A group profile of demographic and/or attitudinal characteristics can be established quickly, without embarrassment.

We all hold untold creativity and wisdom locked within us. This resource is multiplied in the case of a group, and with group interaction it becomes more accessible. The quantum leaps in thinking which characterize creativity, innovation and inspiration are more easily triggered in the fertile environment of group meetings where a multitude of opinions and ideas can be expressed. Making meaning of these opinions and ideas is the bridge to creative decision-making and problem-solving. The CONSENSOR is a major breakthrough toward building this bridge.

THE CONSENSOR

THE BASIC SYSTEM

The basic CONSENSOR system consists of seventeen participant's input Terminals, a high resolution CRT Display Monitor, and a Control Console.

TERMINALS

There are sixteen individual input Terminals (Fig. 1) and a Terminal built into the Control Console in the standard CONSENSOR system. A Selection Switch and a Weighting Switch are on each Terminal. Each Terminal also has a voting button and a voting light.

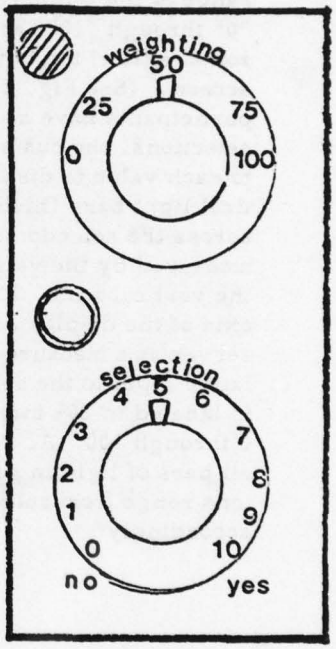


FIG. 1

Selection Switch

The Selection Switch permits each participant to express personal opinions by choosing any position within the selection range from "0" through "10" which best represents his or her view on whatever issue is being discussed. These eleven selection positions are assignable in a variety of ways.

Conventional decision-making generally involves a "yes" or "no" answer. By assuming "0" means "no" and "10" means "yes" on the CONSENSOR Selection Switch, the same binary decision system is established. However, with the CONSENSOR, additional flexibility of expression is obtained, for a participant may select from a range of "yes's" (10, 9, 8, 7, 6) and a range of "no's" (0, 1, 2, 3, 4) with selection "5" representing indecision or uncertainty. In addition, the range of numbers around the Selection Switch may be regarded as progressive values, such as percentages or probabilities, rather than mere degrees of yes and no.

Weighting Switch

The Weighting Switch on each Terminal serves as an "intensity" function and enables each participant to qualify opinions expressed on the Selection Switch by varying the strength of each individual's input. (More about this later)

DISPLAY MONITOR

The Display Monitor is a standard television monitor set. The Display Monitor displays in a quantified form, information collected from a "vote" registered on the input Terminals. The information is shown on a standard television screen.

Display Distribution

The Display Monitor shows the eleven positions on the selection range of the input Terminals, "0" through "10", across a horizontal axis at the bottom of the screen. (See Fig. 2) When all participants have made their selections, the cumulative input to each value is displayed by vertical light bars (histogram form) across the selection scale and measured by the values along the vertical axis. The vertical axis of the display distribution serves as a measure of the cumulative input to the selections and is labeled in 20% increments from 0 through 100. As the display of selections is always normalized, the sum total of all bars of light in each case will be 100%. For example, Figure 2 shows that opinions range from selection "4" through selection "7" and that they are distributed accordingly:

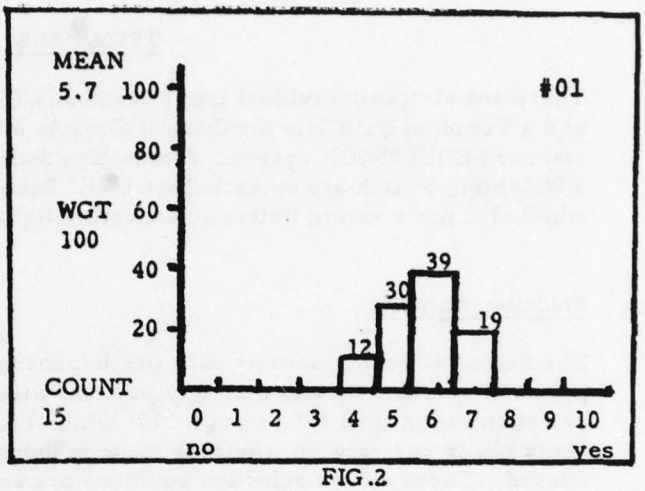


FIG.2

COLUMN	HEIGHT
#4	12% of the participants
#5	30% of the participants
#6	39% of the participants
#7	19% of the participants
	100%

By way of example, suppose a group of people are discussing an issue for which a full "yes" or a full "no" is requested (no maybes -- "1" through "9"). If half of the people vote "no" and half of them vote "yes" -- that is, if the response is equally divided -- then the light column over the "0" and the "10" selections will both show to the 50% level, as in Fig. 3.

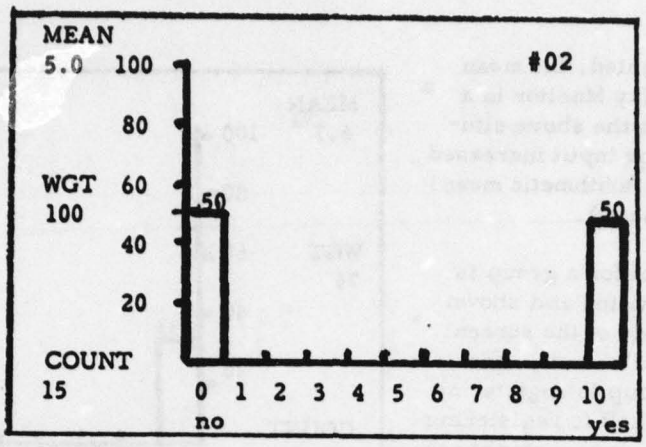


FIG.3

Mean

The CONSENSOR automatically calculates the average, or arithmetic mean, response within the range of selections made by the participants. This value is displayed on the left-hand side of the screen. The mean is based upon the number of individual voter Terminals activated at the time the moderator presses the DISPLAY button on the Control Console. As the number of people wishing to participate in each vote changes, the basis for calculating the mean with each iteration is adjusted automatically. The mean is displayed when the moderator presses the MEAN button on the Control Console.

Weighting

One of the most unusual and valuable features of the CONSENSOR is the Weighting Switch. Each individual voter Terminal has, in addition to the Selection Switch, a dial for adjusting the intensity of one's opinions, depending upon the individual's personal feelings of confidence or competence (or any other relevant criterion) in dealing with the particular subject being discussed. The Weighting Switch has five values -- 0, 25%, 50%, 75%, and 100% (see Fig. 1). If, for example, individual confidence is used as the relevant qualifier, turning the Weighting Switch to 100% indicates that the participant is fully confident in the selection made on the Selection Switch. The system then counts a "full" vote for that selection. Should the participant turn the Weighting Switch to 50% -- indicating half as much confidence in the selection -- that opinion will be registered at half strength (50% of a vote). In short, Weighting qualifies Selection, increasing or decreasing a person's voting power as the individual elects to alter "weight" settings.

Cumulative weighted input to all eleven selections is always displayed, normalized to 100%. For example, in the yes/no situation described before (See Fig.3), if the half of the group saying "10" (yes) were to leave their Weighting Switches at 100%, and the half saying "0" (no) were to reduce their weights to 50%, the "10" bar would then display twice as high as the "0" bar -- 67% at "10", with 33% at"0". (See Fig. 4.) Note that this is something new to our customary practice of democracy. The results are now weighted and the display represents the distribution of total voting power and not simply individual votes. Both columns represent 50% of the voters each, but as the input to both alternatives is unequally weighted, the "yes" half of the group now exerts more influence on the results than do the "no's".

When input is weighted, the mean shown on the Display Monitor is a weighted mean. In the above situation, weighting the input increased the mean from 5.0 (arithmetic mean) to 6.7 (weighted mean).

The average weight for a group is automatically calcualted and shown on the left-hand side of the screen. The average weight shown in Fig. 4 is 75%: half the group is registering 100% weight while half is registering 50% weight. The average weight can become a very significant figure, depending upon what standard is being used to qualify the votes expressed on the Selection Switch.

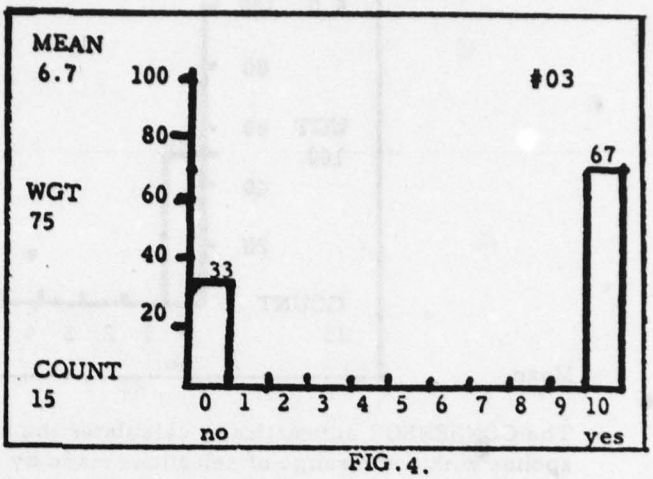


FIG. 4.

Frame Number

Each display is numbered by the CONSENSOR automatically and the individual frame number is shown in the upper right-hand corner of the screen. The system begins the numbering process from the first frame displayed in a meeting and identifies them consecutively until the system is turned off. Numbering begins anew with #01 each time the CONSENSOR is turned on.

Count

The number of individuals participating in any given vote is displayed in the lower left-hand corner of the screen under the word COUNT. This is the number of individual Terminals activated at the moment the DISPLAY button is pressed by the moderator.

Extracted from:

Consensor, Applied Futures, Inc., October 1977. Applied Futures, Inc., Greenwich, CT., pages 1-6.

With permission of:

Applied Futures, Inc.
22 Greenwich Plaza
Greenwich, Connecticut 06830

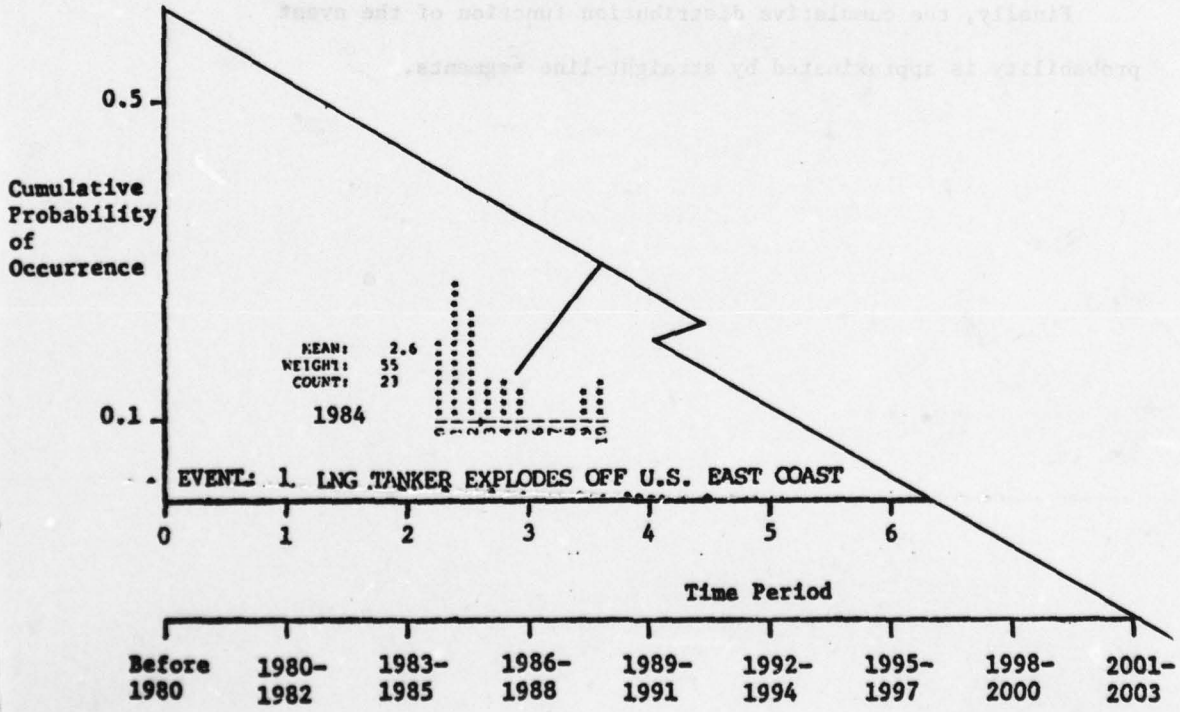
APPENDIX D
RESULTS OF THE MODIFIED DELPHI CONFERENCE

A set of 62 future events was presented to the panel at the conference, and by mail to 6 other participants. In the course of the conference 16 event descriptions (Numbers 8, 11, 17, 19, 21, 24, 31, 36, 40, 41, 42, 43, 45, 51, 54, 60) were modified, and 3 events (Numbers 28, 49, 53) were deleted. One additional event (Number 63) was framed at the conference. Mail responses have been combined with conference responses except where event descriptions were altered.

The attached sheets display the final or only votes on the question:

> By what year will the probability of occurrence of this event reach (0.1, 0.5, 0.9)?

The display is structured as a graph of cumulative probability versus time period (corresponding to Consensor switch positions) and year. The event number and description appears above the horizontal axis, as may be seen in the following extract:



At each probability (0.1, 0.5, 0.9), a bar chart of responses (weighted by the respondent's confidence in his estimate) is shown. All bar charts are expressed as percent; each * represents 2%. Bar chart indications may not sum to 100 because of rounding errors.

Additional information is given to the left of the bar chart:

Mean: The arithmetic mean of all responses weighted by respondents' confidence estimates, in time periods.

Weight: The arithmetic mean of respondents' confidence estimates, in percent; this can be interpreted as a group confidence measure.

Count: The number of responses.

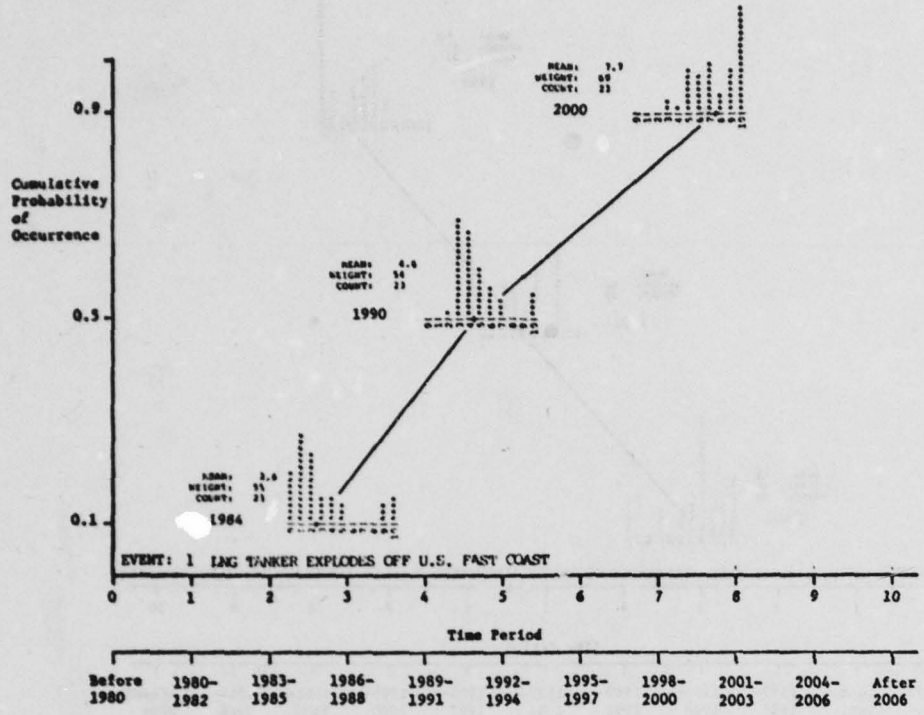
The number in larger type appearing below "Count" is the mean period expressed as a year. The following conversion has been used:

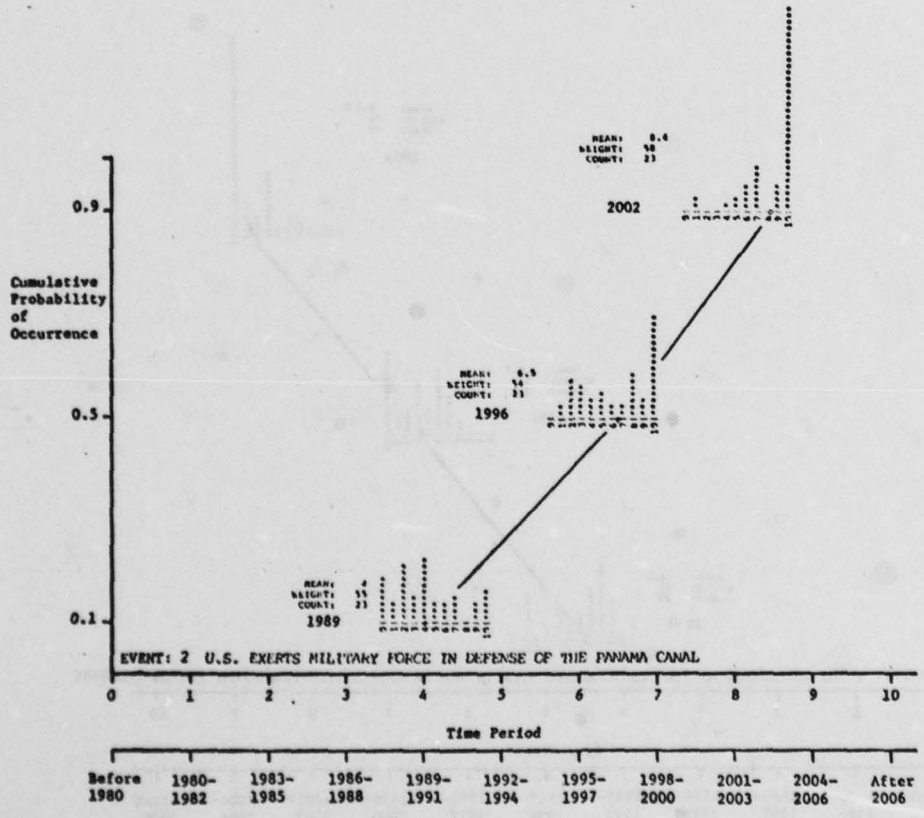
X.0-X.3 Low year of period X

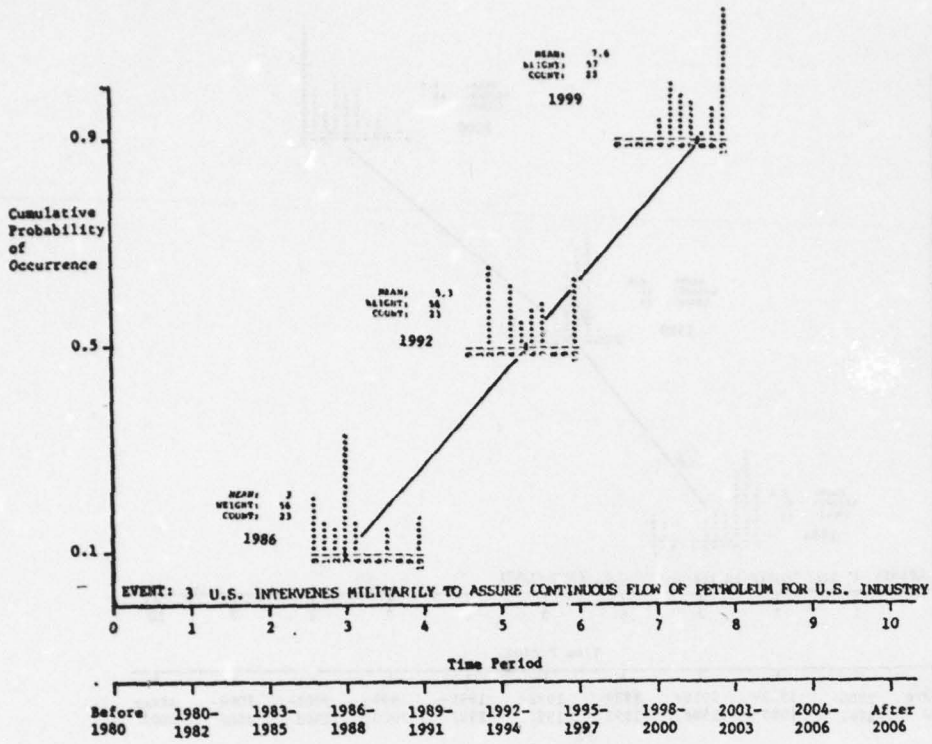
X.4-X.6 Middle year of period X

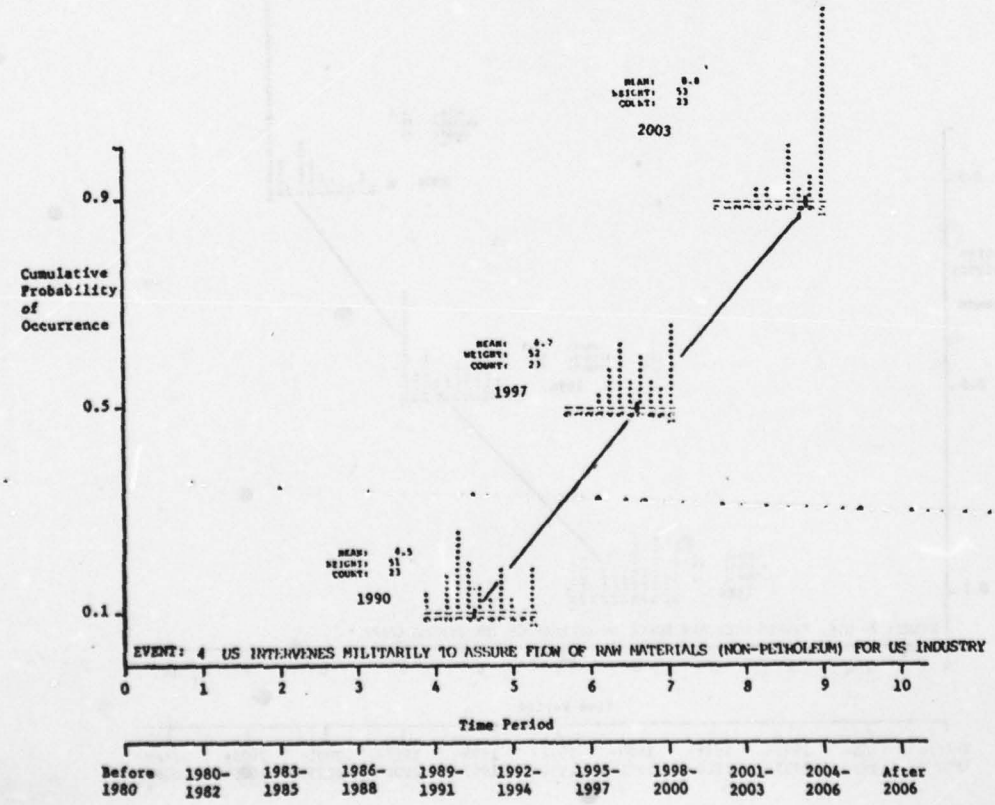
X.7-X.9 High year of period X

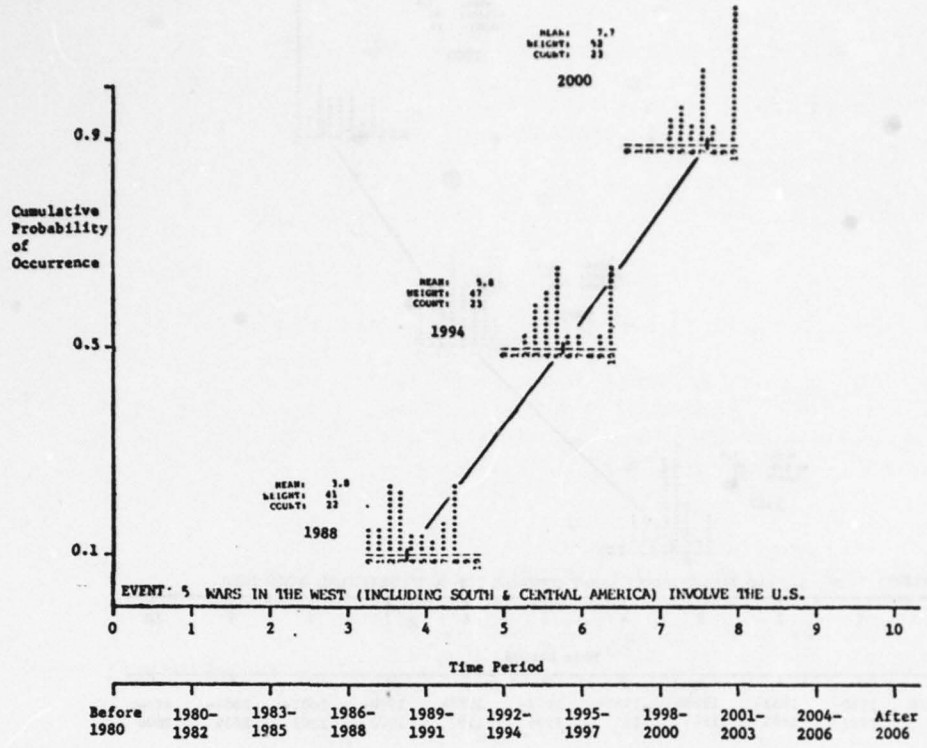
Finally, the cumulative distribution function of the event probability is approximated by straight-line segments.

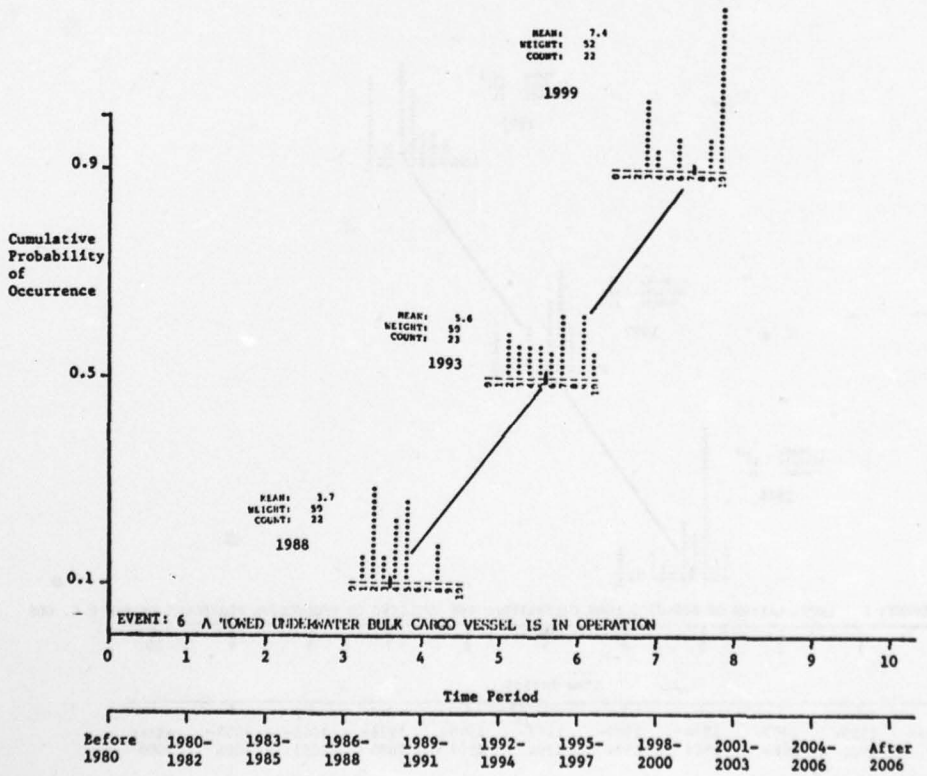

0.9
0.5
0.1
Cumulative Probability of Occurrence
2000
1990
1984
EVENT: 1 LNG TANKER EXPLODES OFF U.S. EAST COAST
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

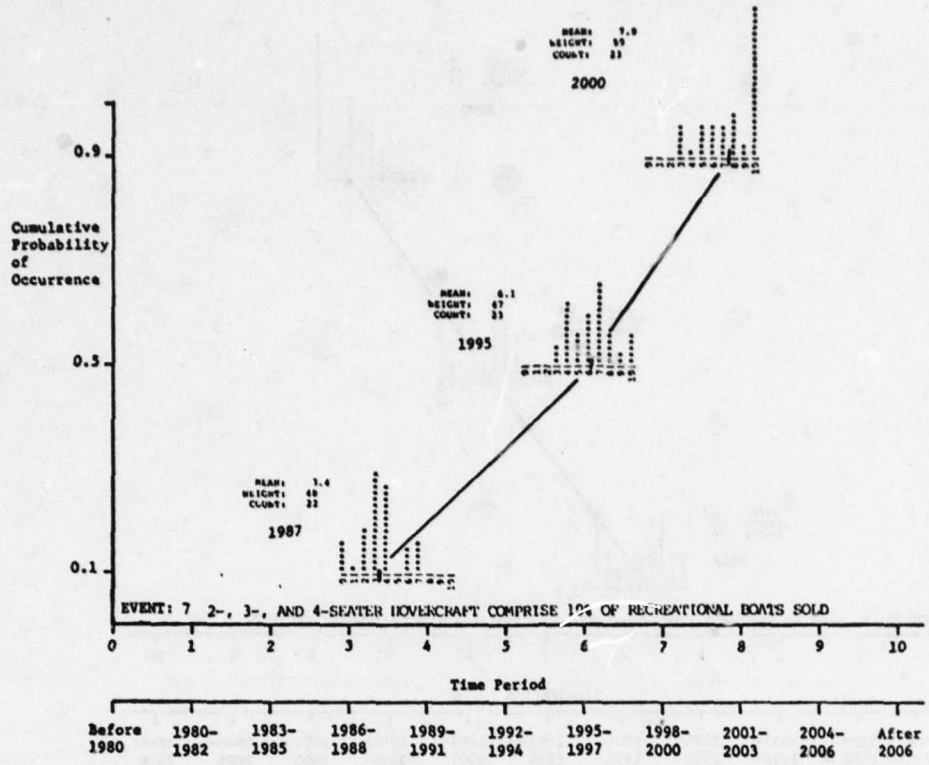

0.9
0.5
0.1
Cumulative Probability of Occurrence
2002
1996
1989
EVENT: 2 U.S. EXERTS MILITARY FORCE IN DEFENSE OF THE PANAMA CANAL
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

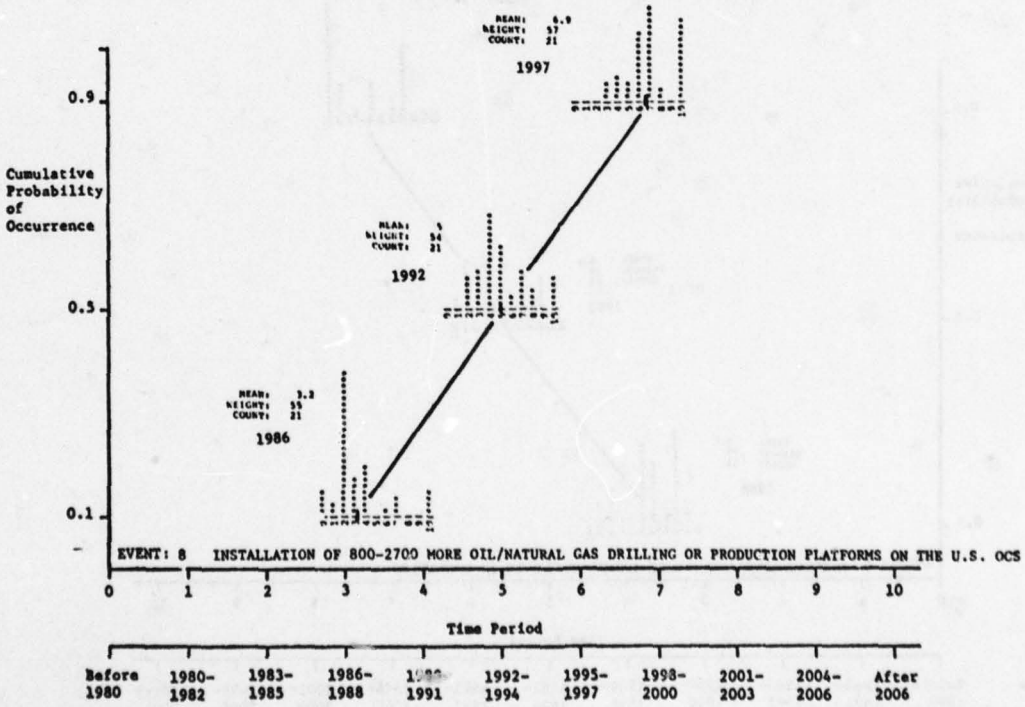

MEAN: 7.6
WEIGHT: 57
COUNT: 33
1999
MEAN: 5.3
WEIGHT: 56
COUNT: 33
1992
MEAN: 3
WEIGHT: 56
COUNT: 33
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 3 U.S. INTERVENES MILITARILY TO ASSURE CONTINUOUS FLOW OF PETROLEUM FOR U.S. INDUSTRY
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

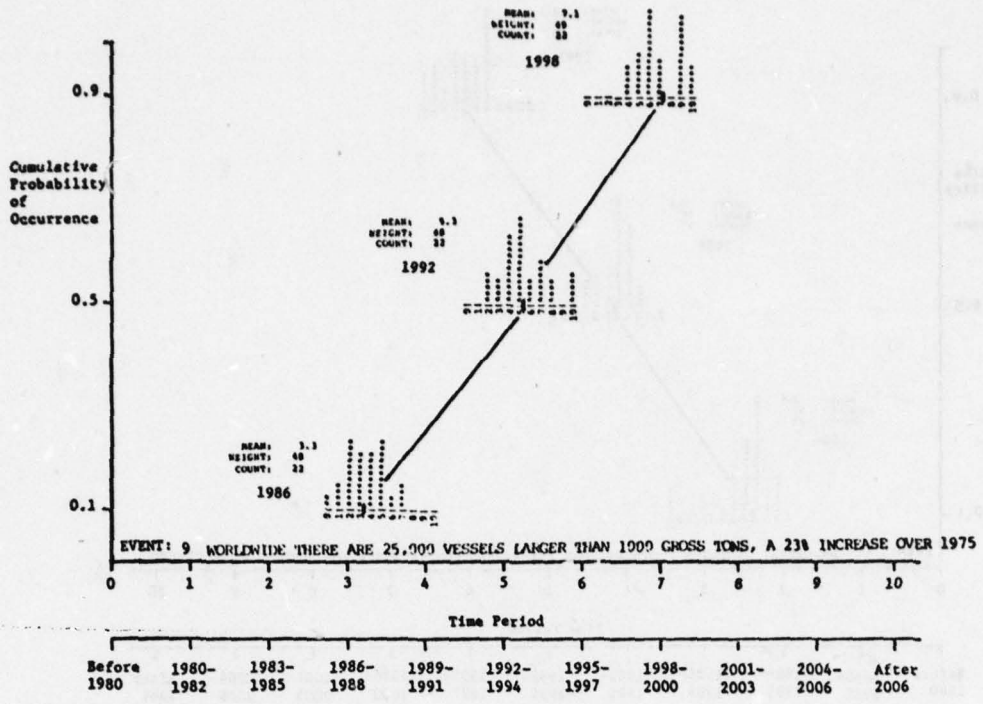

MEAN: 8.0
WEIGHT: 53
COUNT: 33
2003
MEAN: 6.7
WEIGHT: 52
COUNT: 33
1997
MEAN: 4.5
WEIGHT: 51
COUNT: 33
1990
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 4 US INTERVENES MILITARILY TO ASSURE FLOW OF RAW MATERIALS (NON-PETROLEUM) FOR US INDUSTRY
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

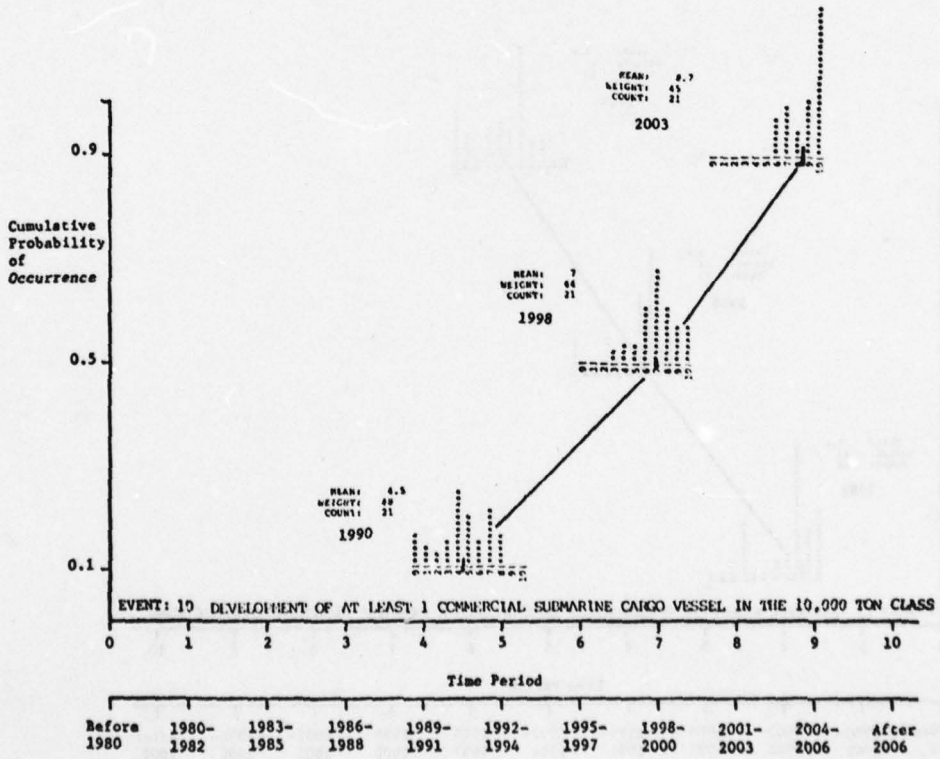

MEAN: 7.7
WEIGHT: 52
COUNT: 23
2000
0.9
Cumulative Probability of Occurrence
MEAN: 5.6
WEIGHT: 47
COUNT: 23
1994
0.5
MEAN: 3.8
WEIGHT: 41
COUNT: 22
1988
0.1
EVENT: 5 WARS IN THE WEST (INCLUDING SOUTH & CENTRAL AMERICA) INVOLVE THE U.S.
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

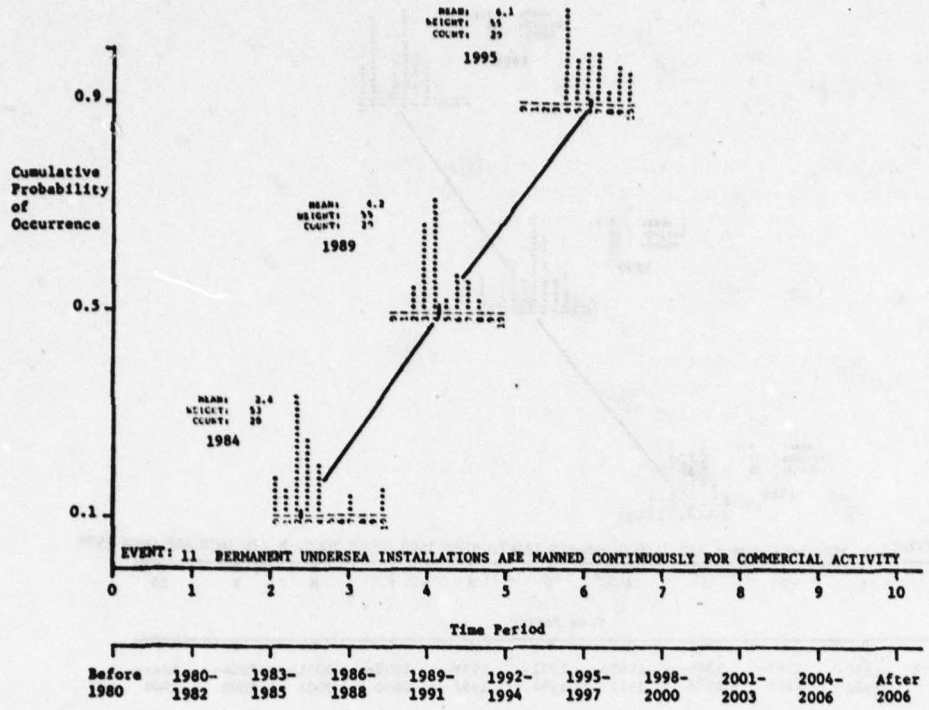

MEAN: 7.4
WEIGHT: 52
COUNT: 22
1999
0.9
Cumulative Probability of Occurrence
MEAN: 5.6
WEIGHT: 55
COUNT: 23
1993
0.5
MEAN: 3.7
WEIGHT: 59
COUNT: 22
1988
0.1
EVENT: 6 A TOWED UNDERWATER BULK CARGO VESSEL IS IN OPERATION
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

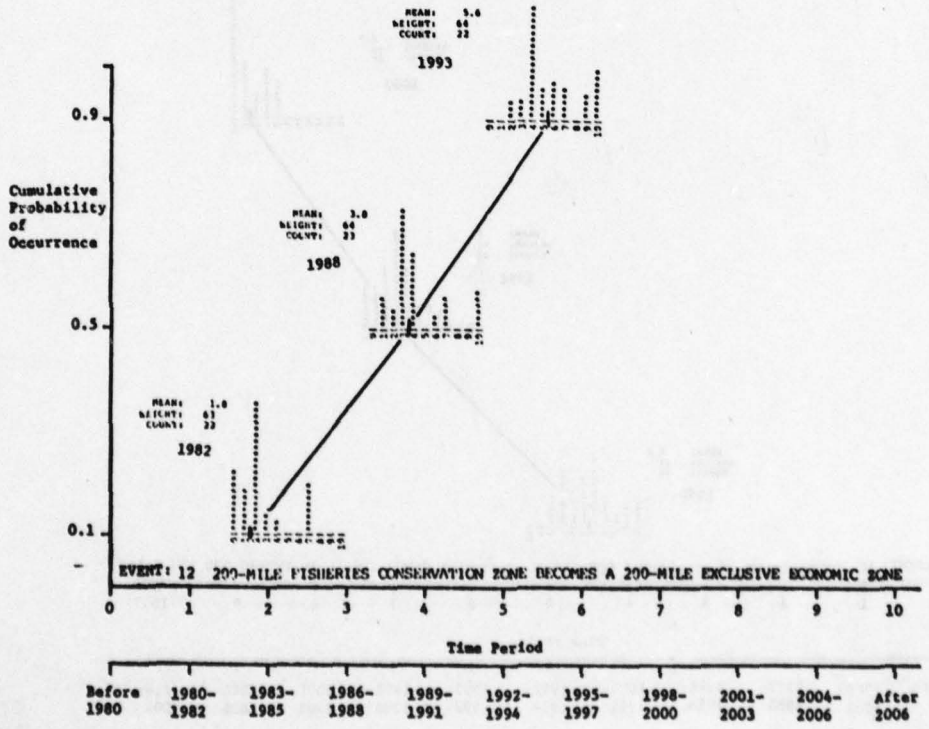

2000
1995
1987
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 7 2-, 3-, AND 4-SEATER HOVERCRAFT COMPRISE 10% OF RECREATIONAL BOATS SOLD
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

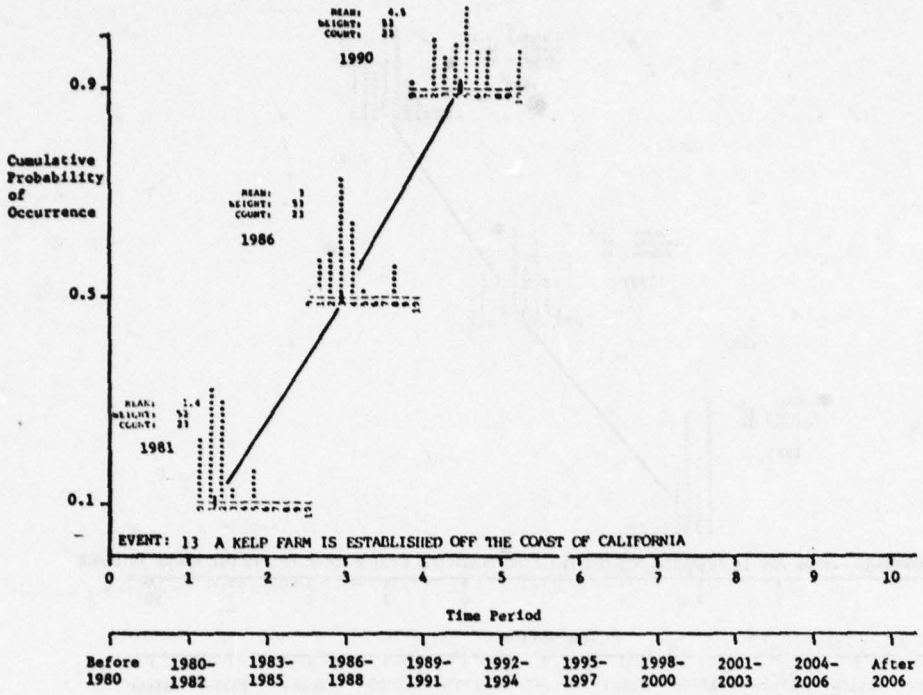

1997
1992
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 8 INSTALLATION OF 800-2700 MORE OIL/NATURAL GAS DRILLING OR PRODUCTION PLATFORMS ON THE U.S. OCS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

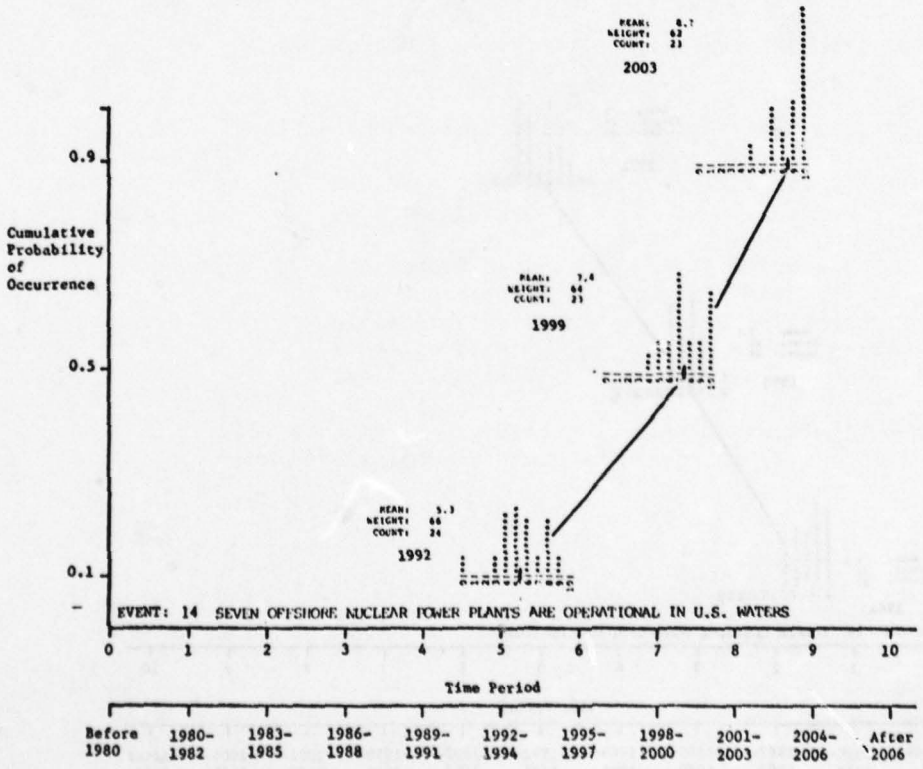

1998
1992
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 9 WORLDWIDE THERE ARE 25,000 VESSELS LARGER THAN 1000 GROSS TONS, A 23% INCREASE OVER 1975
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

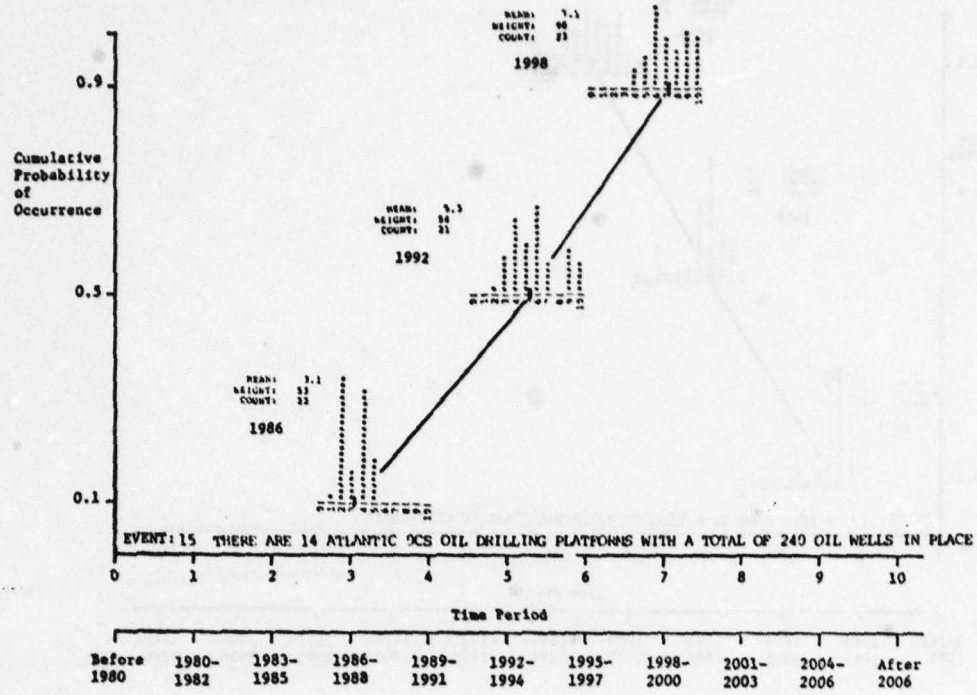

2003
1998
1990
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 10 DEVELOPMENT OF AT LEAST 1 COMMERCIAL SUBMARINE CARGO VESSEL IN THE 10,000 TON CLASS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

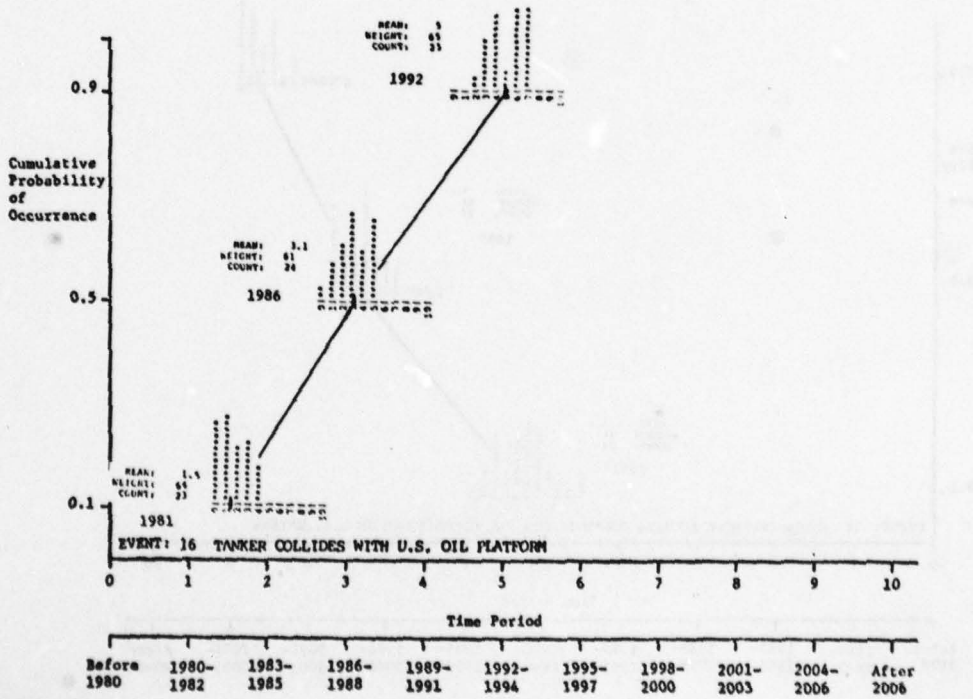

1995
1989
1984
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 11 PERMANENT UNDERSEA INSTALLATIONS ARE MANNED CONTINUOUSLY FOR COMMERCIAL ACTIVITY
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

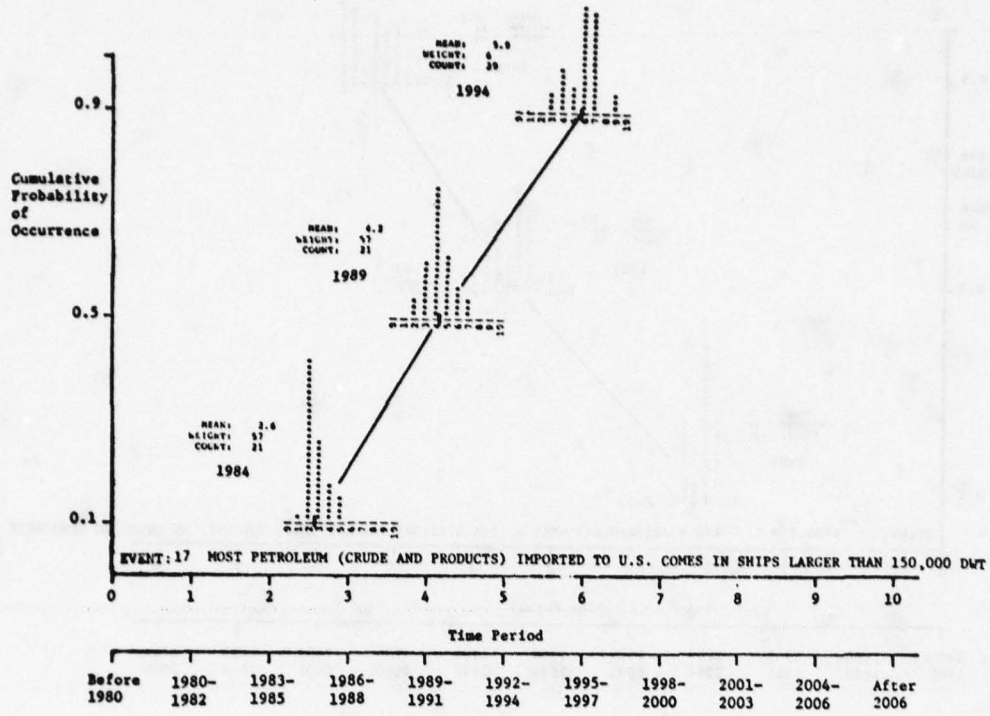

1993
1988
1982
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 12 200-MILE FISHERIES CONSERVATION ZONE BECOMES A 200-MILE EXCLUSIVE ECONOMIC ZONE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

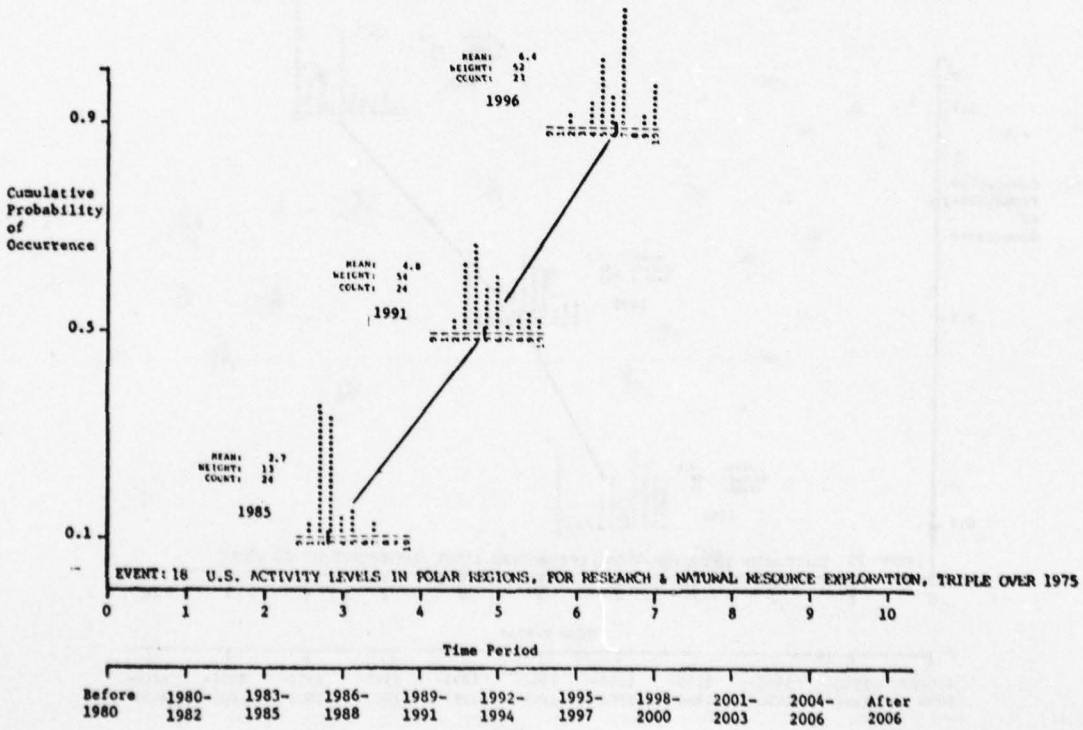

1990
1986
1981
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 13 A KELP FARM IS ESTABLISHED OFF THE COAST OF CALIFORNIA
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

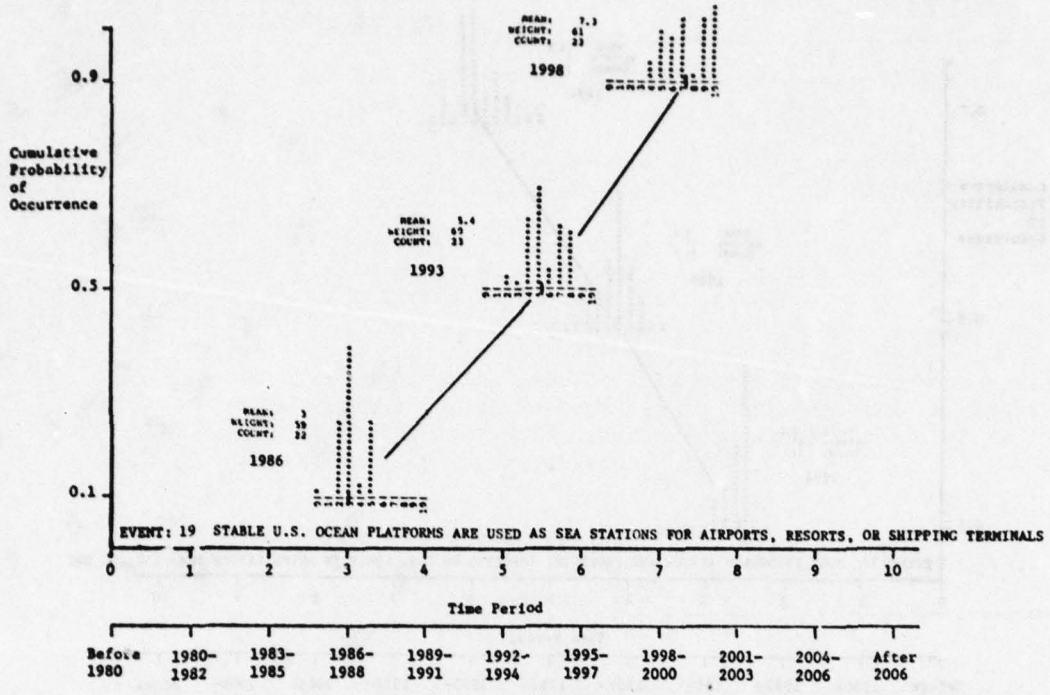

2003
1999
1992
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 14 SEVEN OFFSHORE NUCLEAR POWER PLANTS ARE OPERATIONAL IN U.S. WATERS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

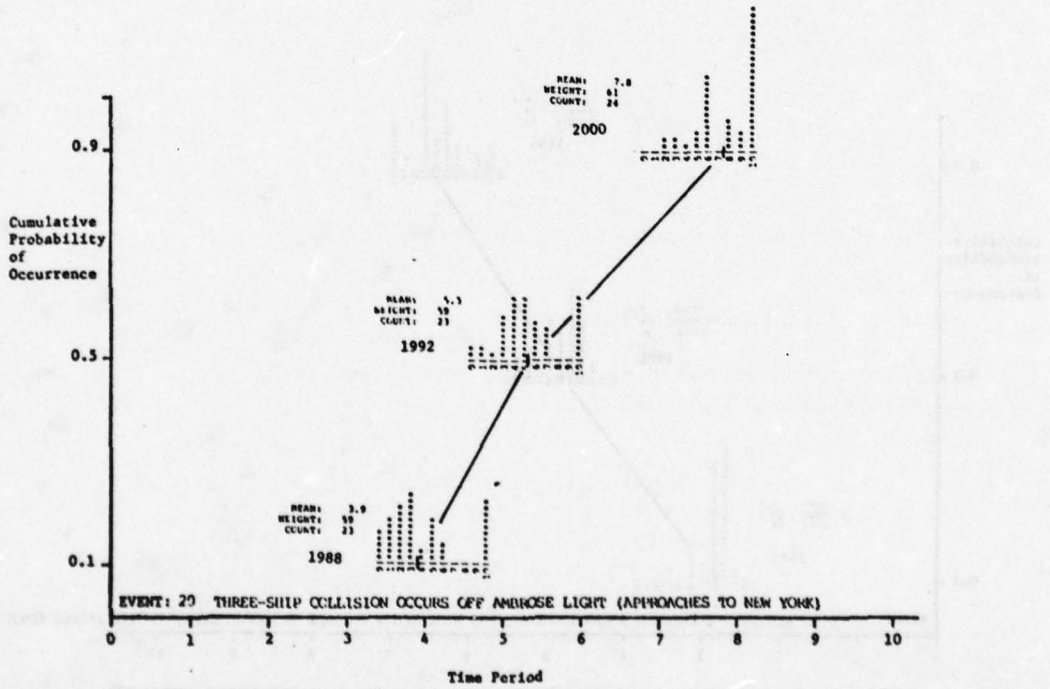

1998
1992
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 15 THERE ARE 14 ATLANTIC OCS OIL DRILLING PLATFORMS WITH A TOTAL OF 240 OIL WELLS IN PLACE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

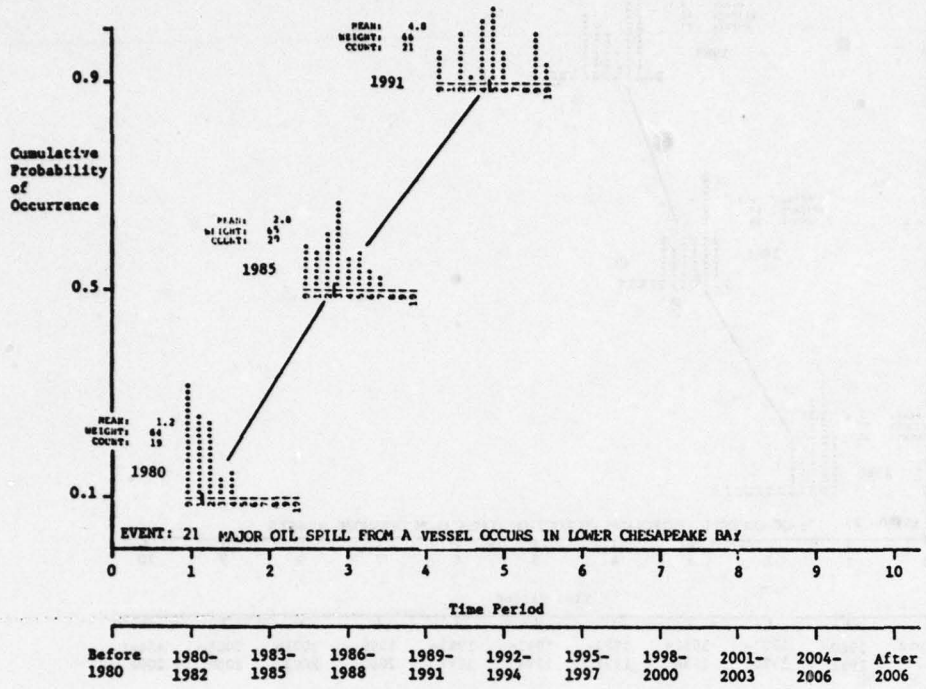

1992
1986
1981
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 16 TANKER COLLIDES WITH U.S. OIL PLATFORM
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

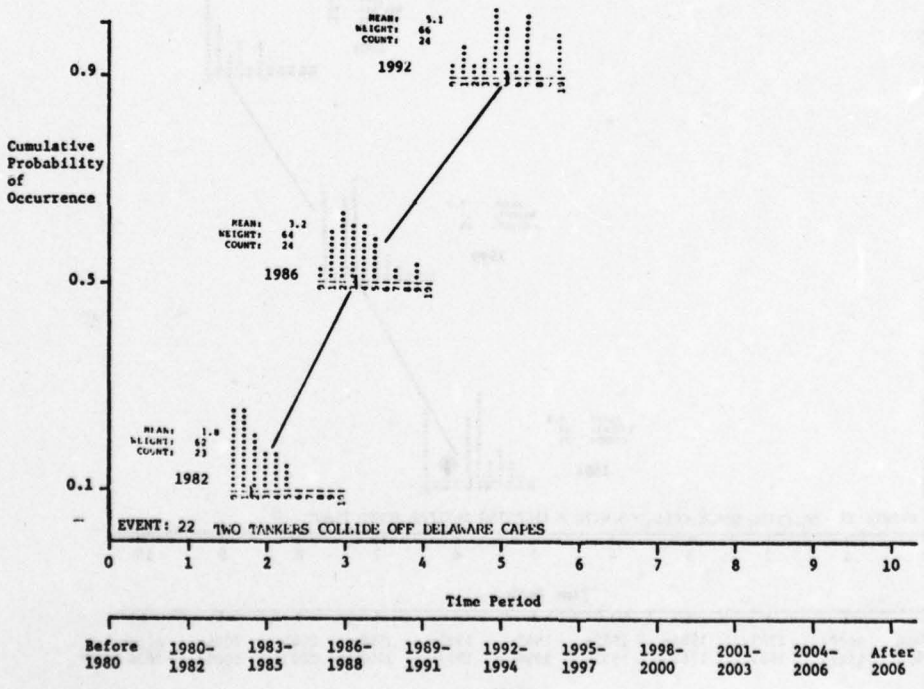

MEAN: 5.9
WEIGHT: 6
COUNT: 20
1994
MEAN: 4.3
WEIGHT: 57
COUNT: 21
1989
MEAN: 2.6
WEIGHT: 57
COUNT: 21
1984
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 17 MOST PETROLEUM (CRUDE AND PRODUCTS) IMPORTED TO U.S. COMES IN SHIPS LARGER THAN 150,000 DWT
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

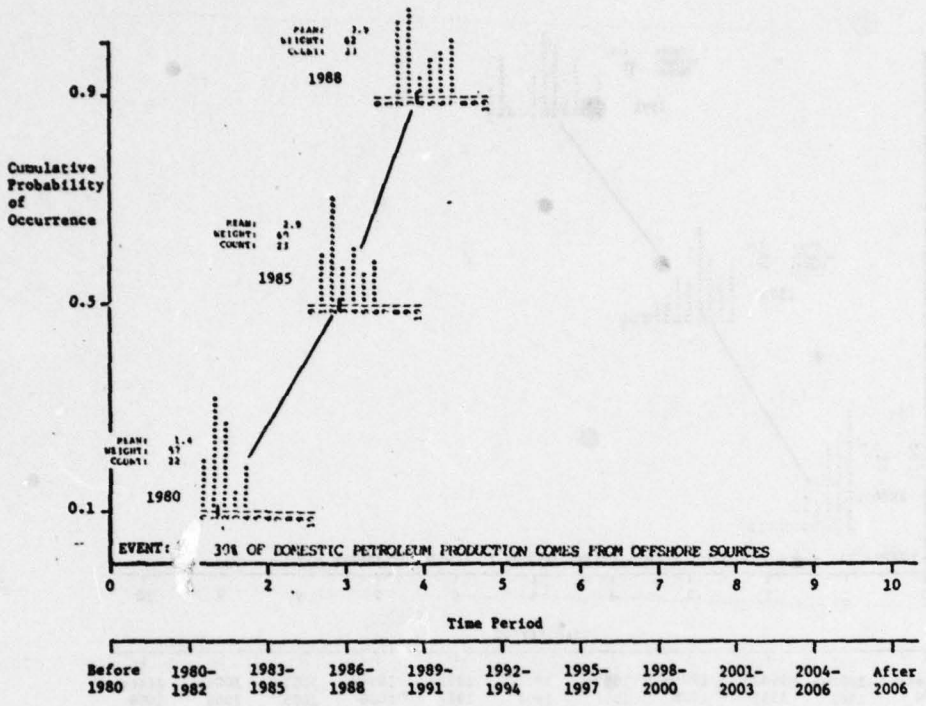

MEAN: 6.4
WEIGHT: 52
COUNT: 21
1996
MEAN: 4.8
WEIGHT: 54
COUNT: 24
1991
MEAN: 3.7
WEIGHT: 13
COUNT: 24
1985
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 18 U.S. ACTIVITY LEVELS IN POLAR REGIONS, FOR RESEARCH & NATURAL RESOURCE EXPLORATION, TRIPLE OVER 1975
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

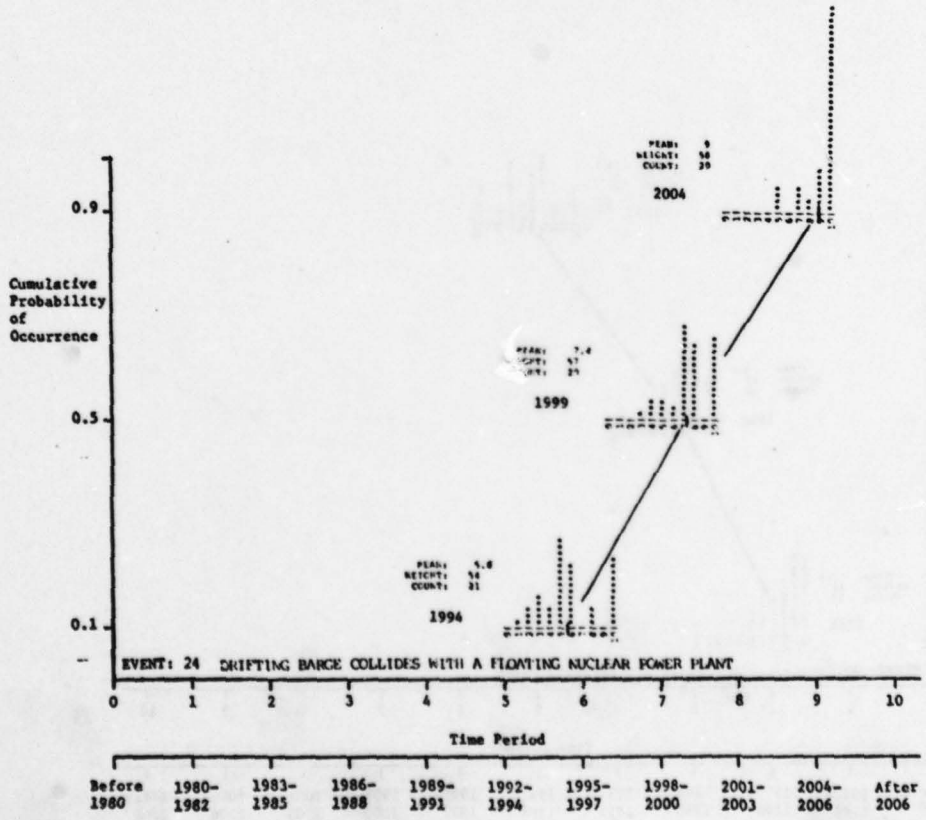

MEAN: 7.3
WEIGHT: 61
COUNT: 23
1998
MEAN: 5.4
WEIGHT: 69
COUNT: 33
1993
MEAN: 3
WEIGHT: 59
COUNT: 22
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 19 STABLE U.S. OCEAN PLATFORMS ARE USED AS SEA STATIONS FOR AIRPORTS, RESORTS, OR SHIPPING TERMINALS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

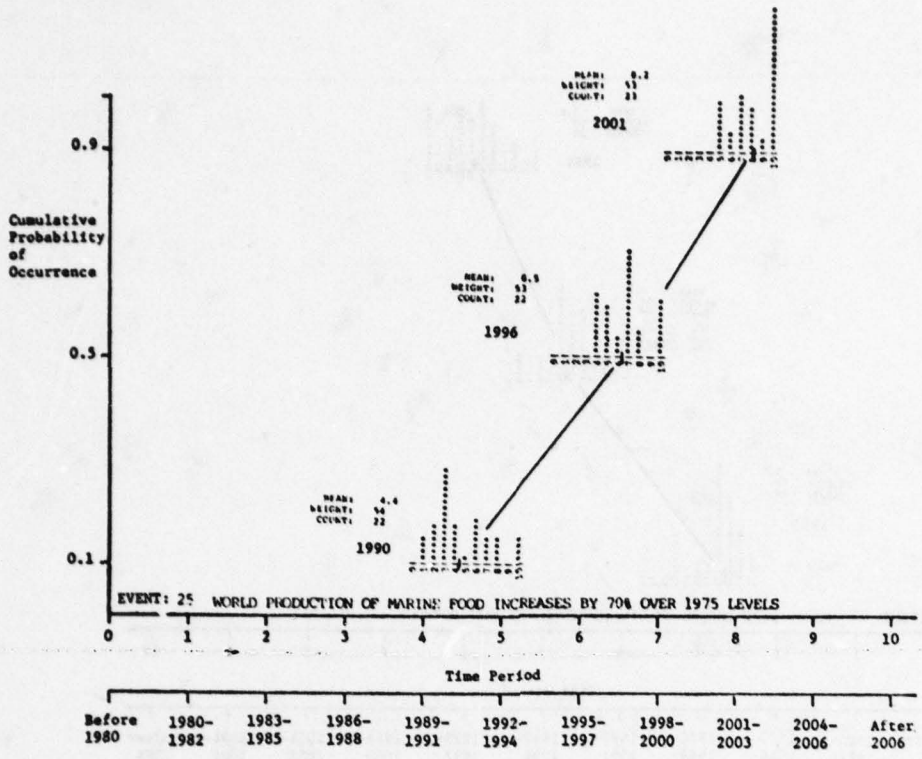

MEAN: 7.8
WEIGHT: 61
COUNT: 24
2000
MEAN: 5.3
WEIGHT: 59
COUNT: 23
1992
MEAN: 3.9
WEIGHT: 59
COUNT: 23
1988
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 20 THREE-SHIP COLLISION OCCURS OFF AMBROSE LIGHT (APPROACHES TO NEW YORK)
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

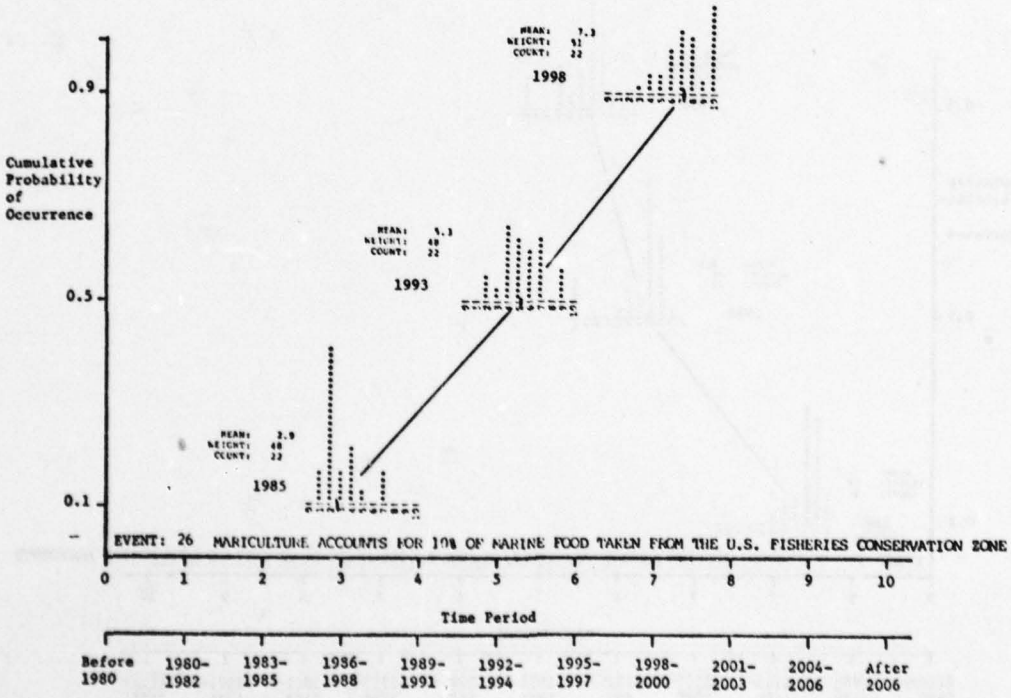

MEAN: 4.8
WEIGHT: 66
COUNT: 21
1991
MEAN: 2.8
WEIGHT: 65
COUNT: 29
1985
MEAN: 1.2
WEIGHT: 64
COUNT: 19
1980
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 21 MAJOR OIL SPILL FROM A VESSEL OCCURS IN LOWER CHESAPEAKE BAY
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

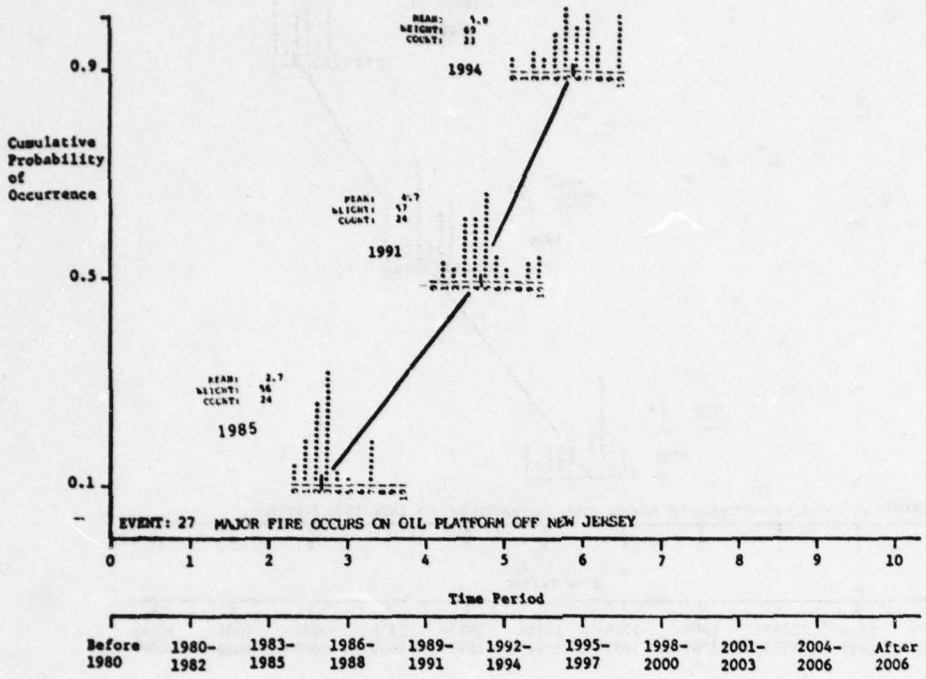

MEAN: 5.1
WEIGHT: 64
COUNT: 24
1992
MEAN: 3.2
WEIGHT: 64
COUNT: 24
1986
MEAN: 1.8
WEIGHT: 62
COUNT: 23
1982
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 22 TWO TANKERS COLLIDE OFF DELAWARE CAPES
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

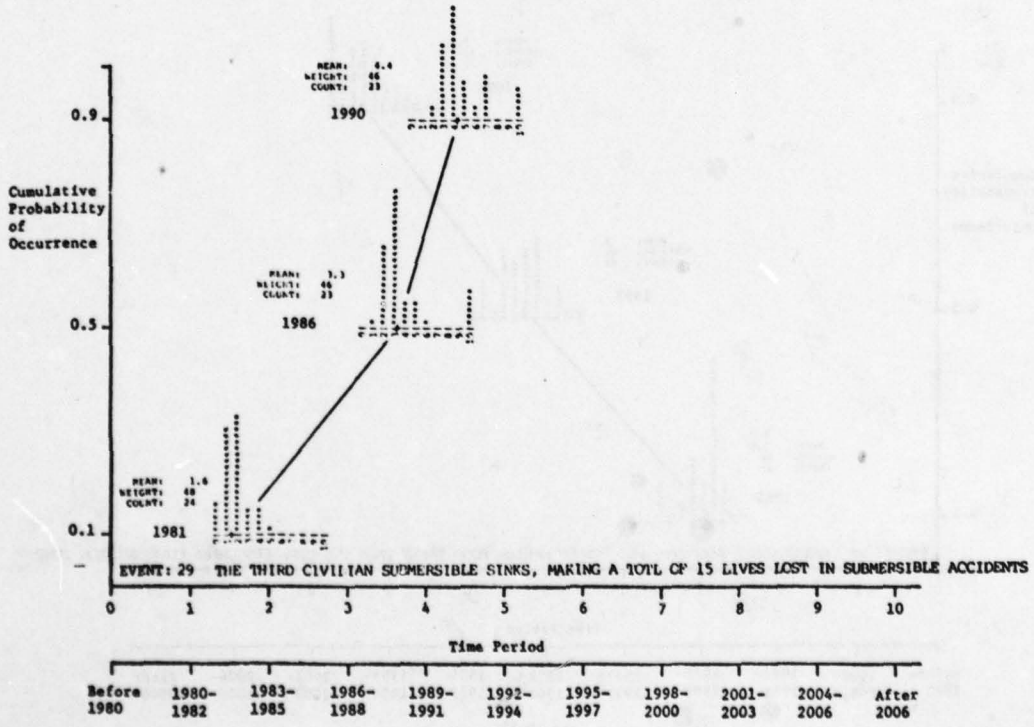

1988
1985
1980
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 30% OF DOMESTIC PETROLEUM PRODUCTION COMES FROM OFFSHORE SOURCES
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

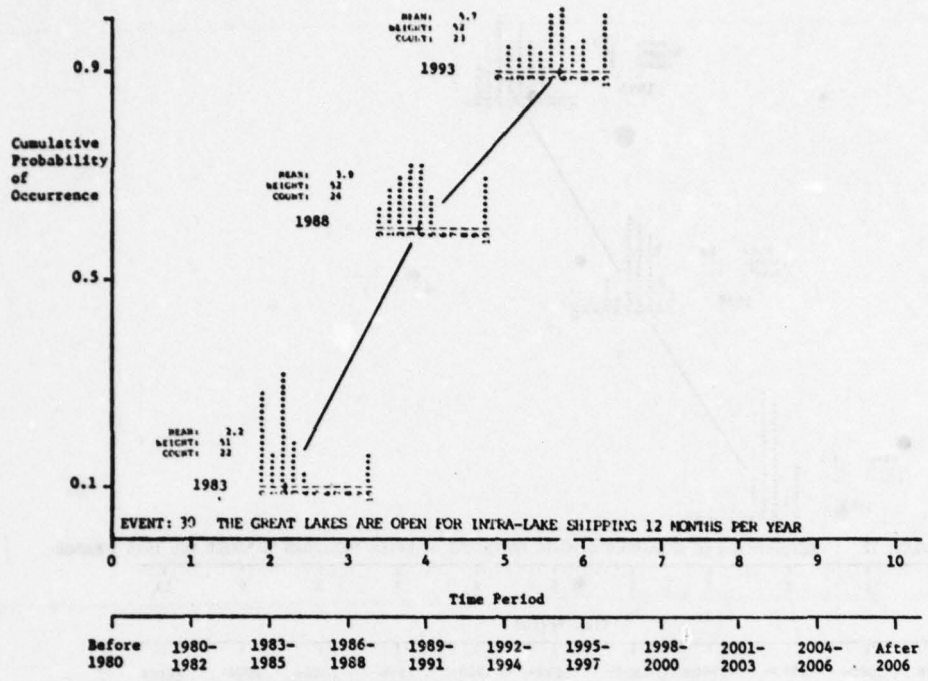

2004
1999
1994
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 24 DRIFTING BARGE COLLIDES WITH A FLOATING NUCLEAR POWER PLANT
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

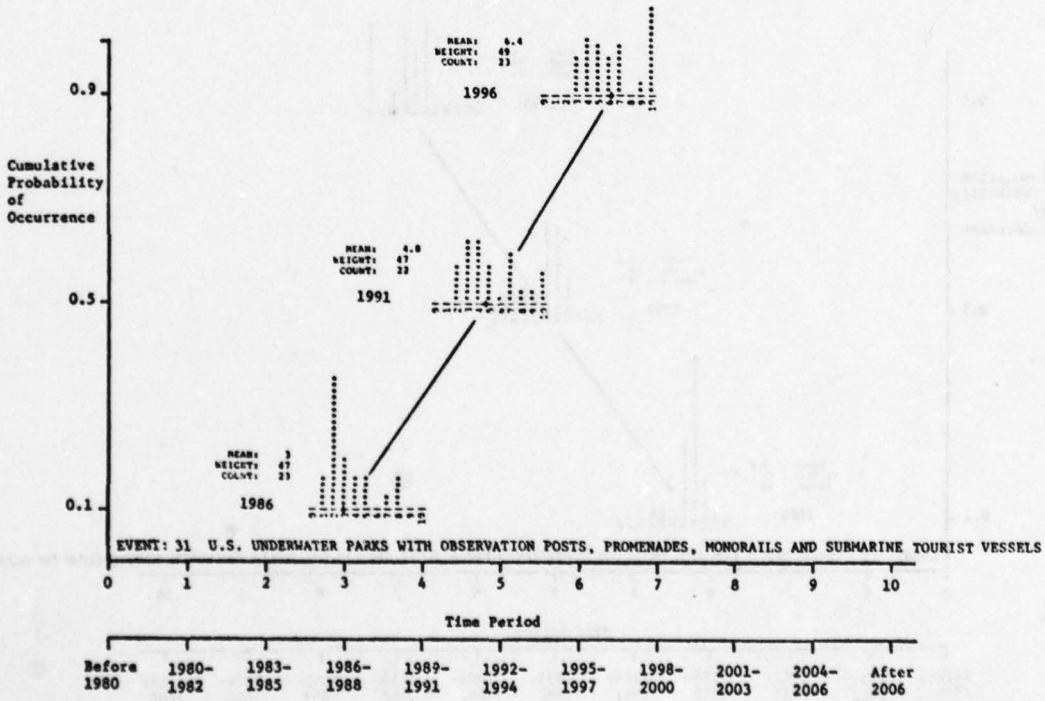

0.9
0.5
0.1
Cumulative Probability of Occurrence
2001
1996
1990
EVENT: 25 WORLD PRODUCTION OF MARINE FOOD INCREASES BY 70% OVER 1975 LEVELS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

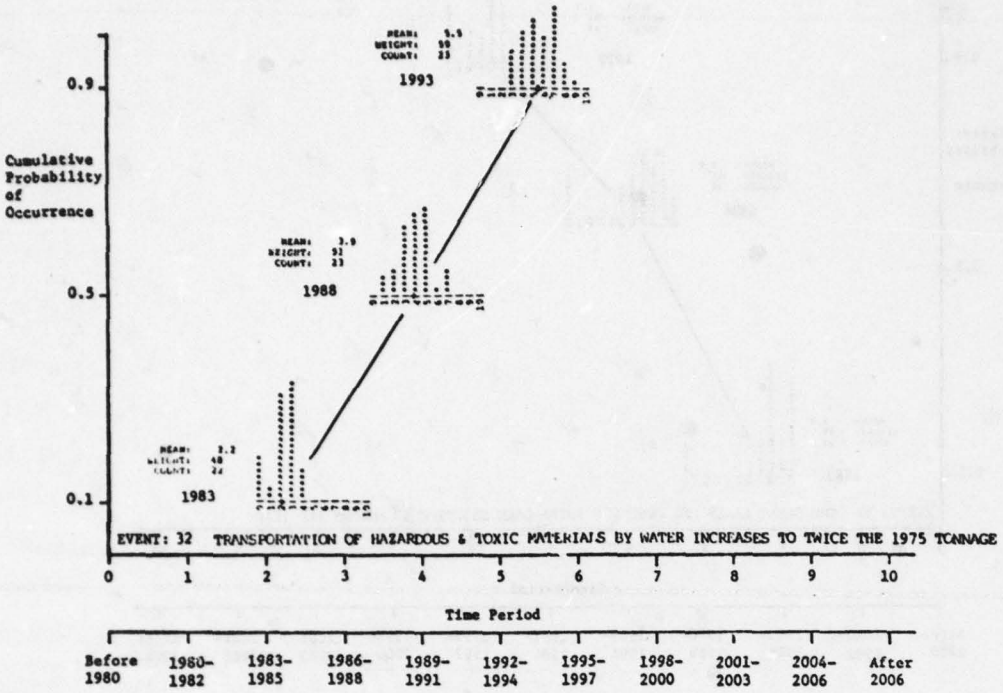

0.9
0.5
0.1
Cumulative Probability of Occurrence
1998
1993
1985
EVENT: 26 MARICULTURE ACCOUNTS FOR 10% OF MARINE FOOD TAKEN FROM THE U.S. FISHERIES CONSERVATION ZONE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

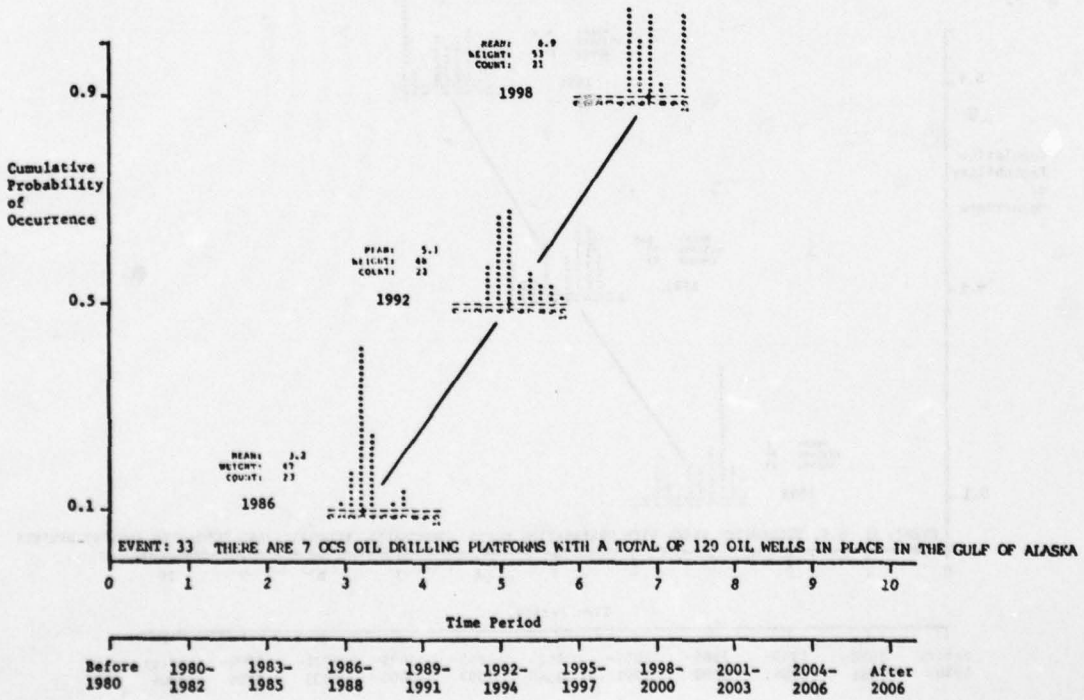

0.9
0.5
0.1
Cumulative Probability of Occurrence
1994
1991
1985
EVENT: 27 MAJOR FIRE OCCURS ON OIL PLATFORM OFF NEW JERSEY
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

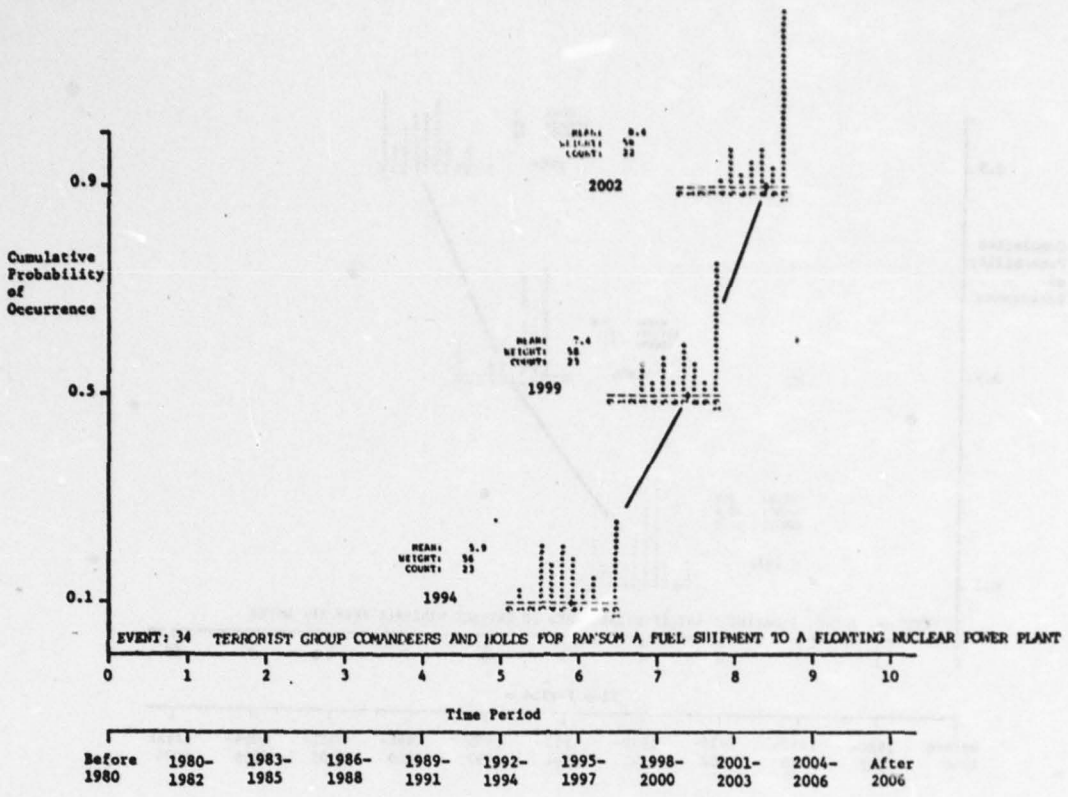

0.9
0.5
0.1
Cumulative Probability of Occurrence
1990
1986
1981
EVENT: 29 THE THIRD CIVILIAN SUBMERSIBLE SINKS, MAKING A TOTL OF 15 LIVES LOST IN SUBMERSIBLE ACCIDENTS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
1993
1988
1983
EVENT: 30 THE GREAT LAKES ARE OPEN FOR INTRA-LAKE SHIPPING 12 MONTHS PER YEAR
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

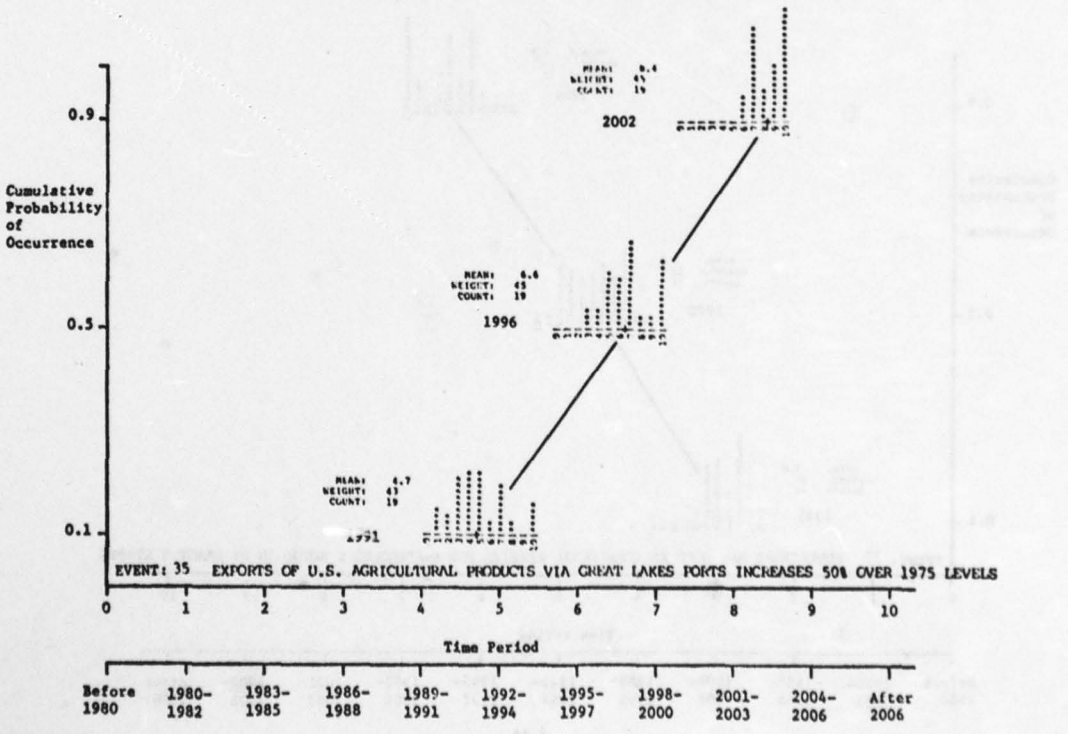

0.9
0.5
0.1
Cumulative Probability of Occurrence
1996
1991
1986
EVENT: 31 U.S. UNDERWATER PARKS WITH OBSERVATION POSTS, PROMENADES, MONORAILS AND SUBMARINE TOURIST VESSELS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


1993
1988
1983
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 32 TRANSPORTATION OF HAZARDOUS & TOXIC MATERIALS BY WATER INCREASES TO TWICE THE 1975 TONNAGE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

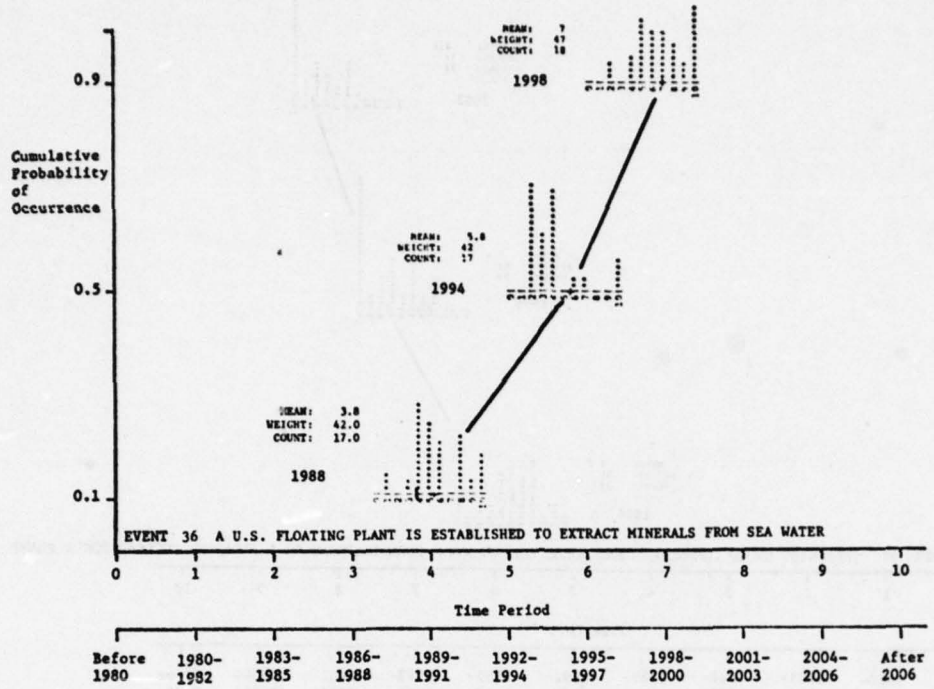

1998
1992
1986
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 33 THERE ARE 7 OCS OIL DRILLING PLATFORMS WITH A TOTAL OF 120 OIL WELLS IN PLACE IN THE GULF OF ALASKA
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

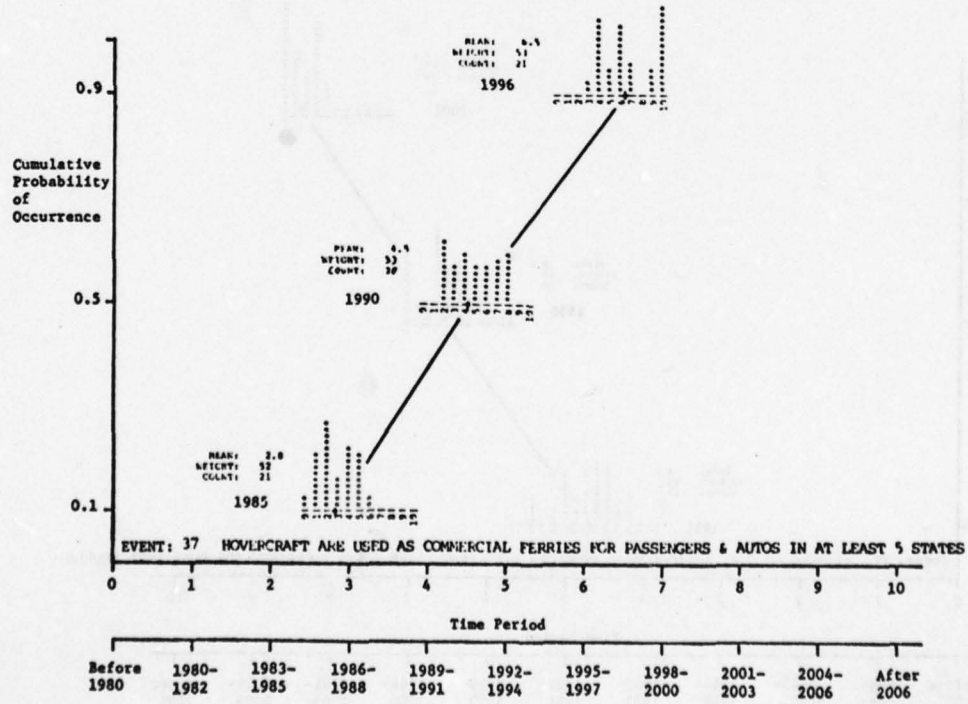


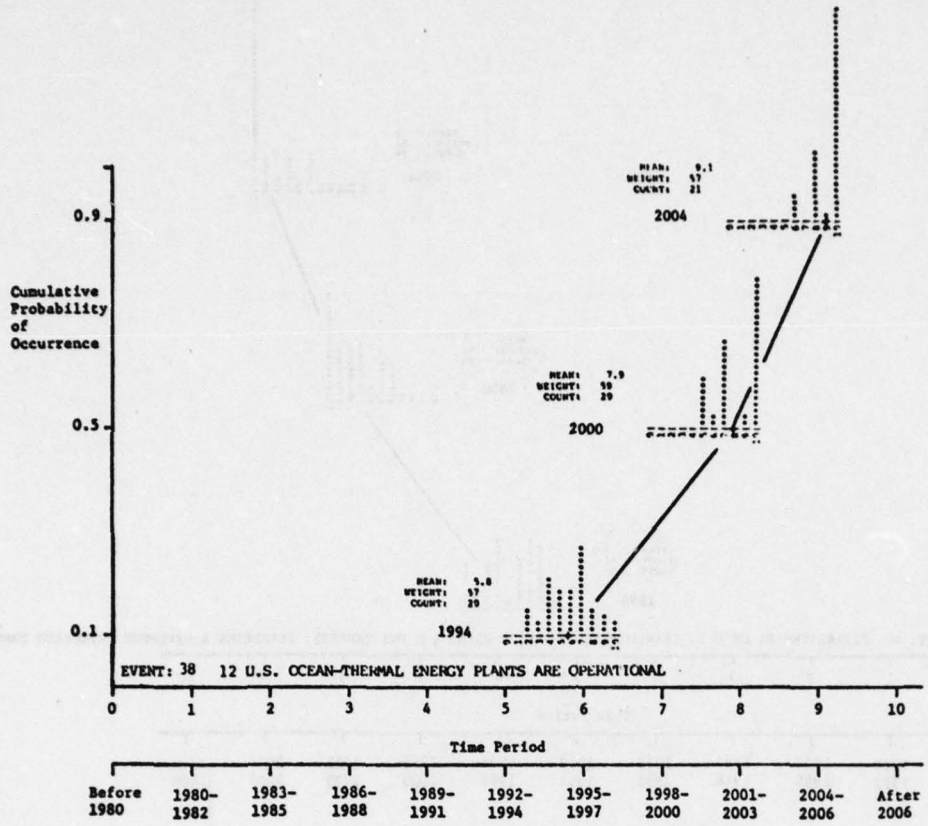
EVENT: 34 TERRORIST GROUP COMANDEERS AND HOLDS FOR RANSOM A FUEL SHIPMENT TO A FLOATING NUCLEAR POWER PLANT

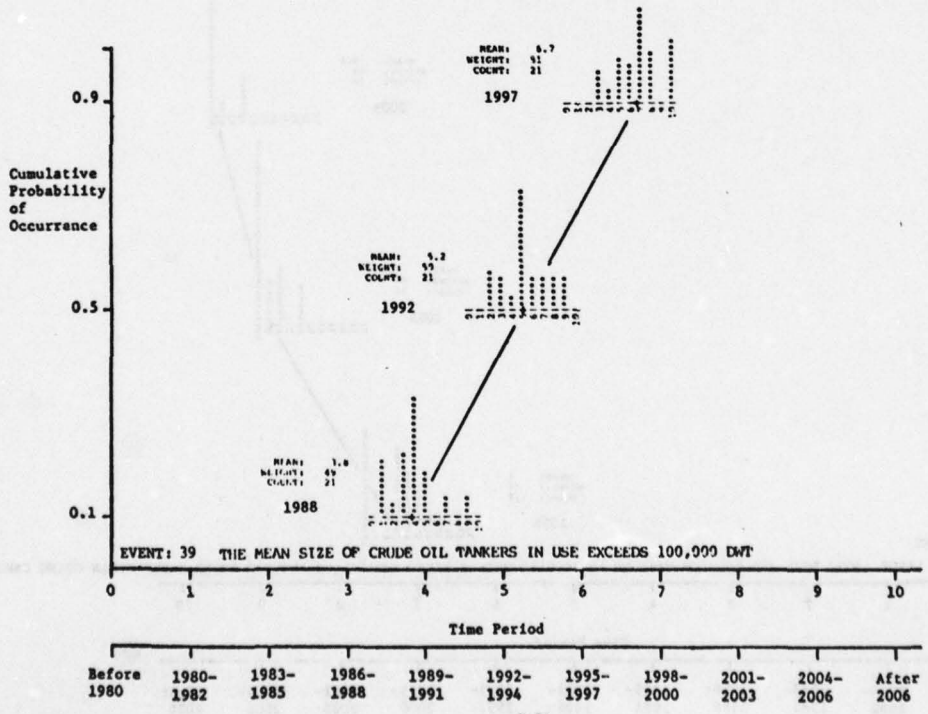


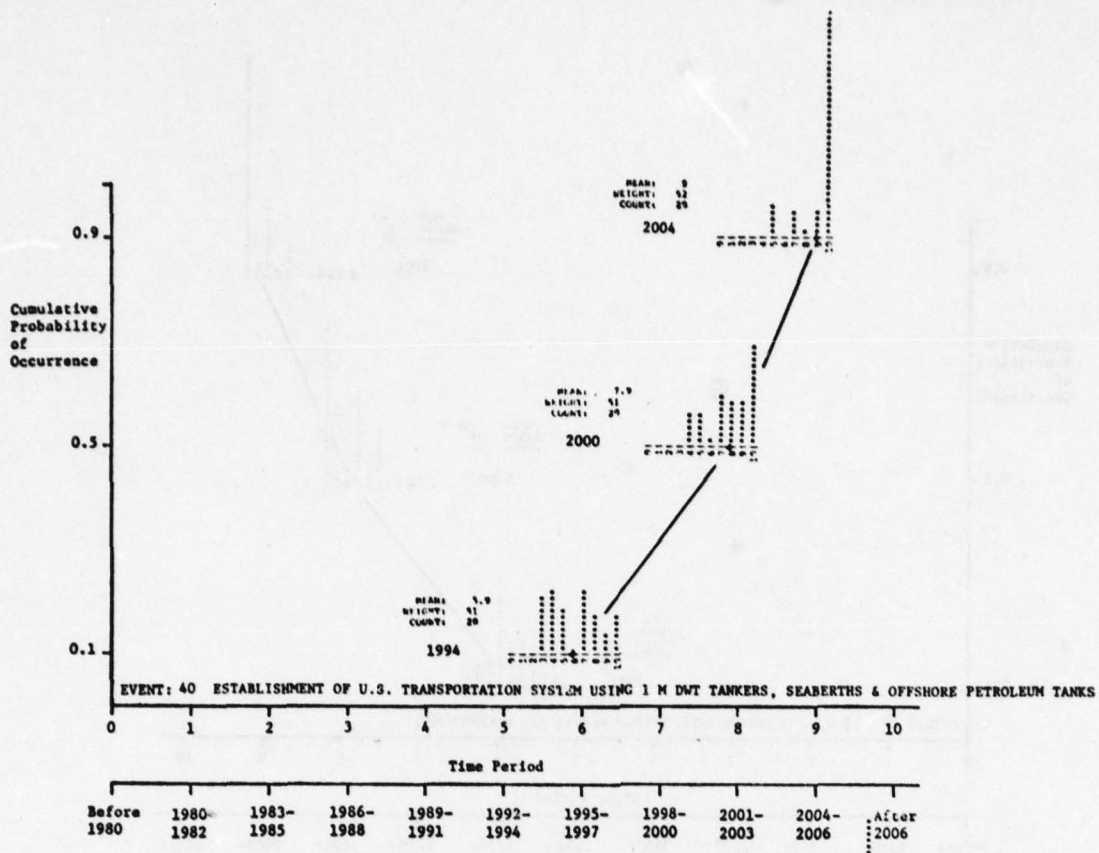
EVENT: 35 EXPORTS OF U.S. AGRICULTURAL PRODUCTS VIA GREAT LAKES PORTS INCREASES 50% OVER 1975 LEVELS

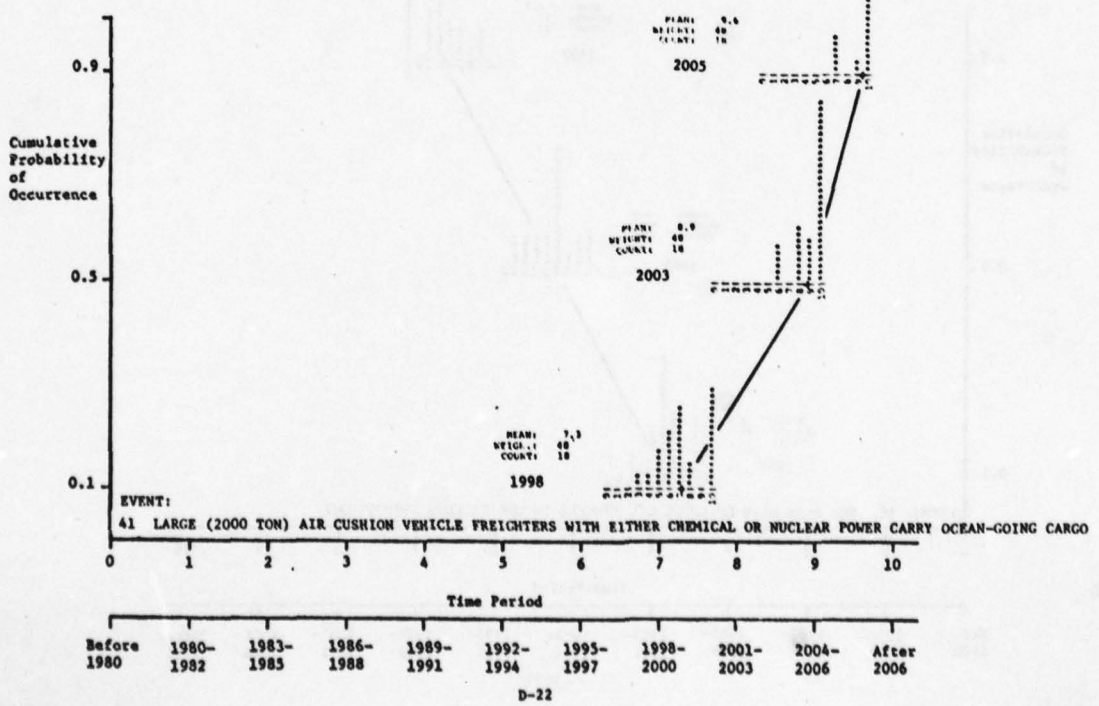

0.9
0.5
0.1
Cumulative Probability of Occurrence
1998
1994
1988
EVENT 36 A U.S. FLOATING PLANT IS ESTABLISHED TO EXTRACT MINERALS FROM SEA WATER
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

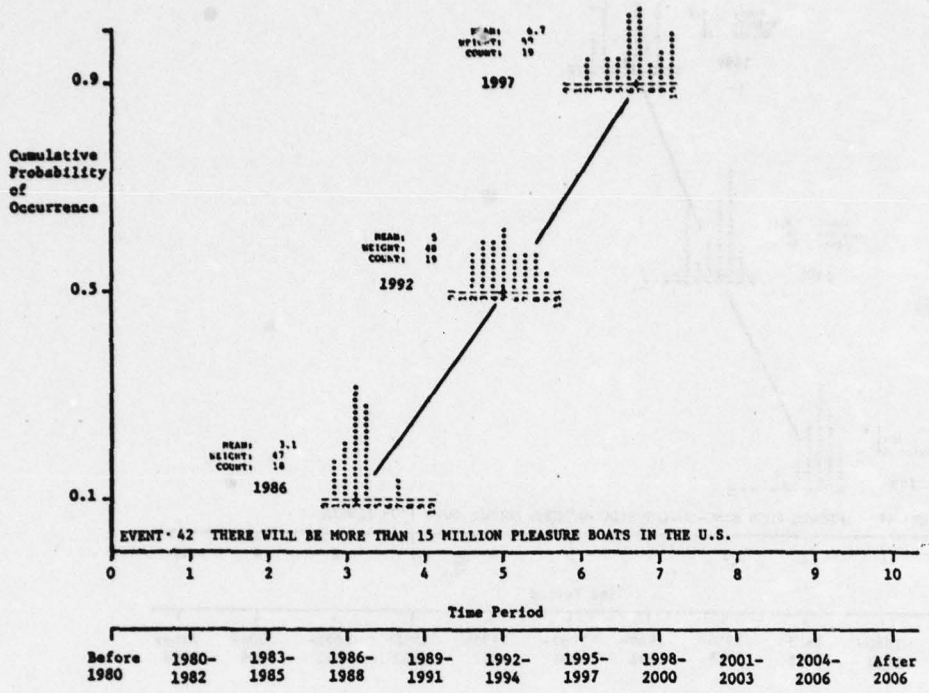

0.9
0.5
0.1
Cumulative Probability of Occurrence
1996
1990
1985
EVENT: 37 HOVERCRAFT ARE USED AS COMMERCIAL FERRIES FOR PASSENGERS & AUTOS IN AT LEAST 5 STATES
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

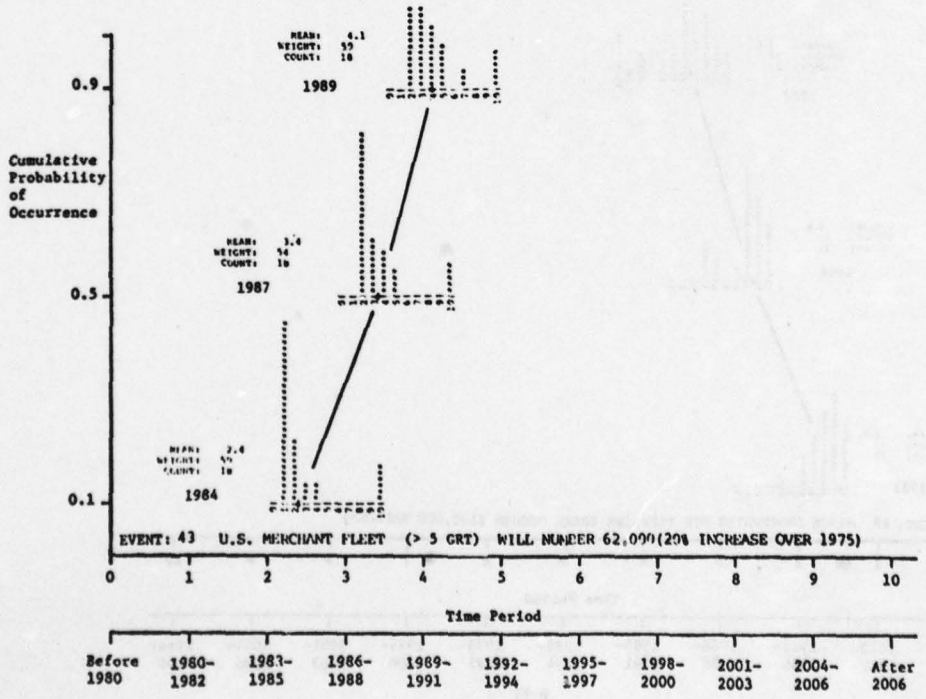

MEAN: 9.1
WEIGHT: 57
COUNT: 21
2004
MEAN: 7.9
WEIGHT: 59
COUNT: 29
2000
MEAN: 5.8
WEIGHT: 57
COUNT: 29
1994
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 38 12 U.S. OCEAN-THERMAL ENERGY PLANTS ARE OPERATIONAL
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

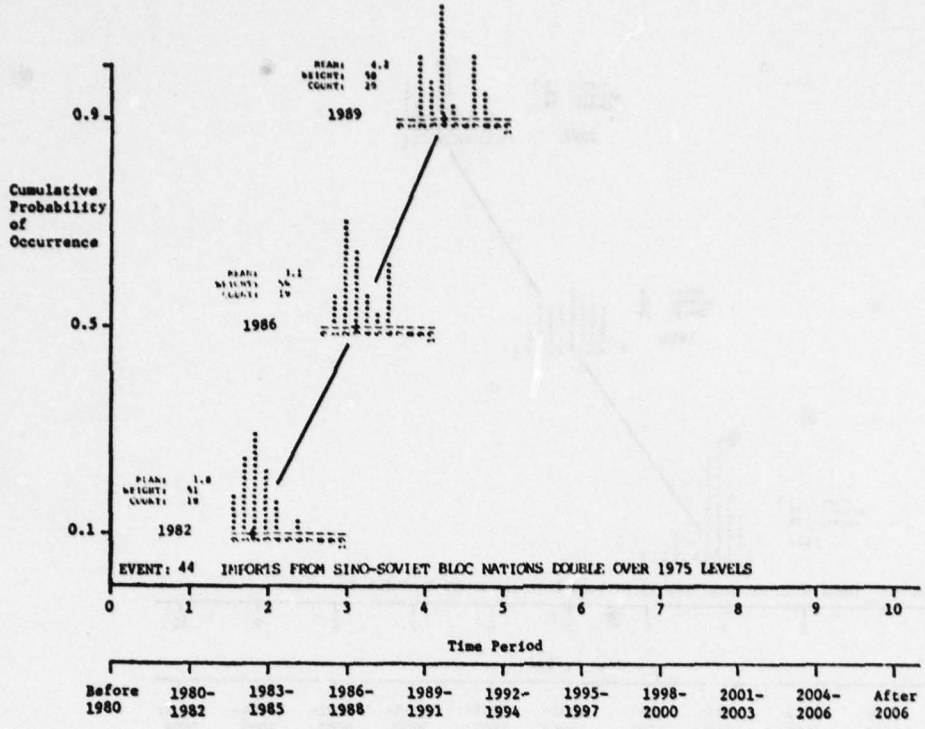

MEAN: 6.7
WEIGHT: 51
COUNT: 21
1997
MEAN: 5.2
WEIGHT: 55
COUNT: 21
1992
MEAN: 3.8
WEIGHT: 49
COUNT: 21
1988
0.9
0.5
0.1
Cumulative Probability of Occurrence
EVENT: 39 THE MEAN SIZE OF CRUDE OIL TANKERS IN USE EXCEEDS 100,000 DWT
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

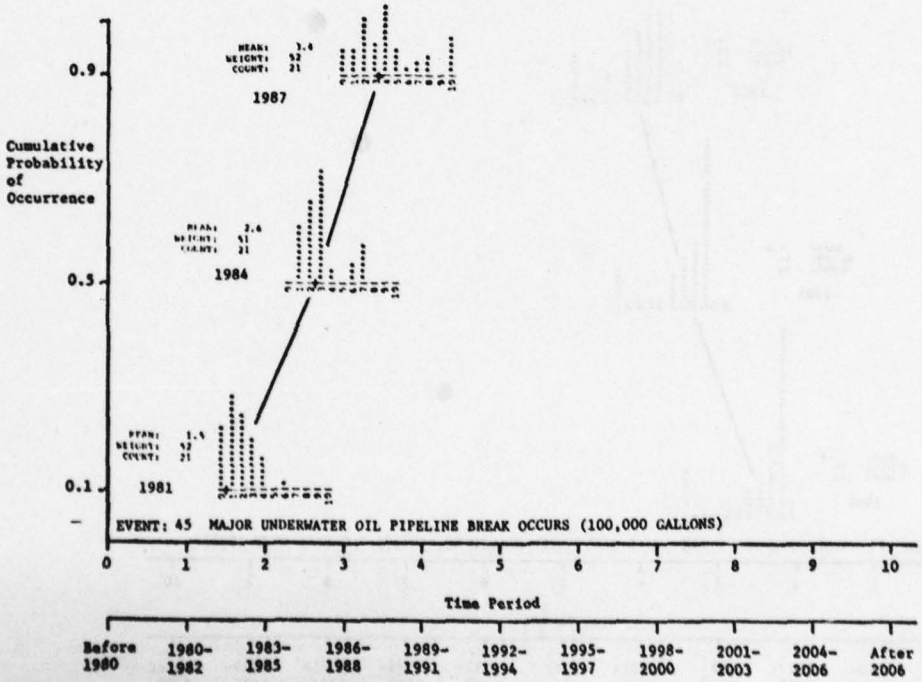

Cumulative Probability of Occurrence
0.9
0.5
0.1
2004
2000
1994
EVENT: 40 ESTABLISHMENT OF U.S. TRANSPORTATION SYSTEM USING 1 M DWT TANKERS, SEABERTHS & OFFSHORE PETROLEUM TANKS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

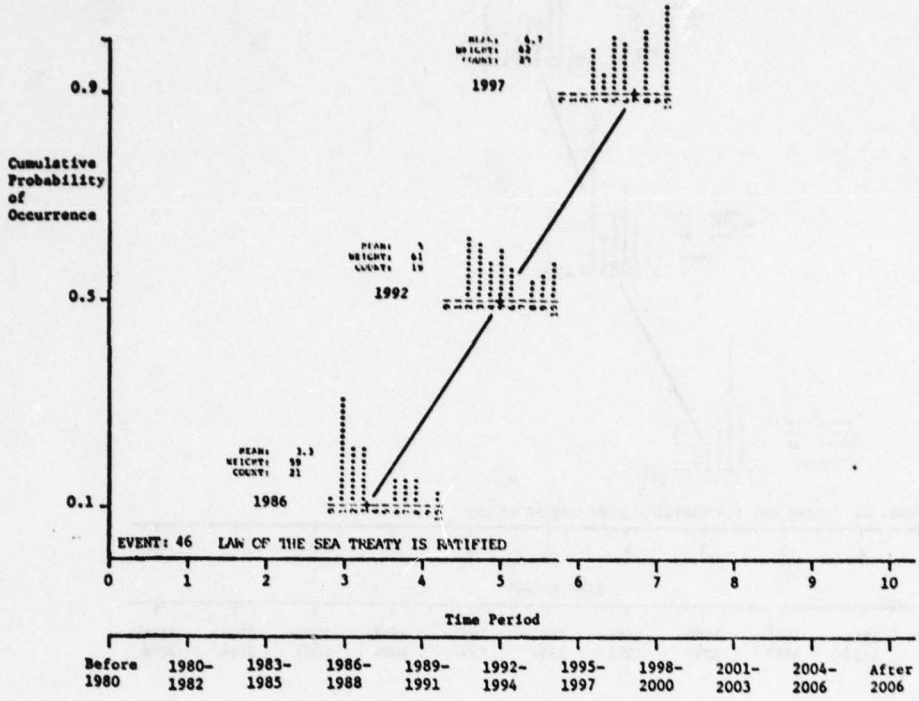

Cumulative Probability of Occurrence
0.9
0.5
0.1
2005
2003
1998
EVENT:
41 LARGE (2000 TON) AIR CUSHION VEHICLE FREIGHTERS WITH EITHER CHEMICAL OR NUCLEAR POWER CARRY OCEAN-GOING CARGO
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

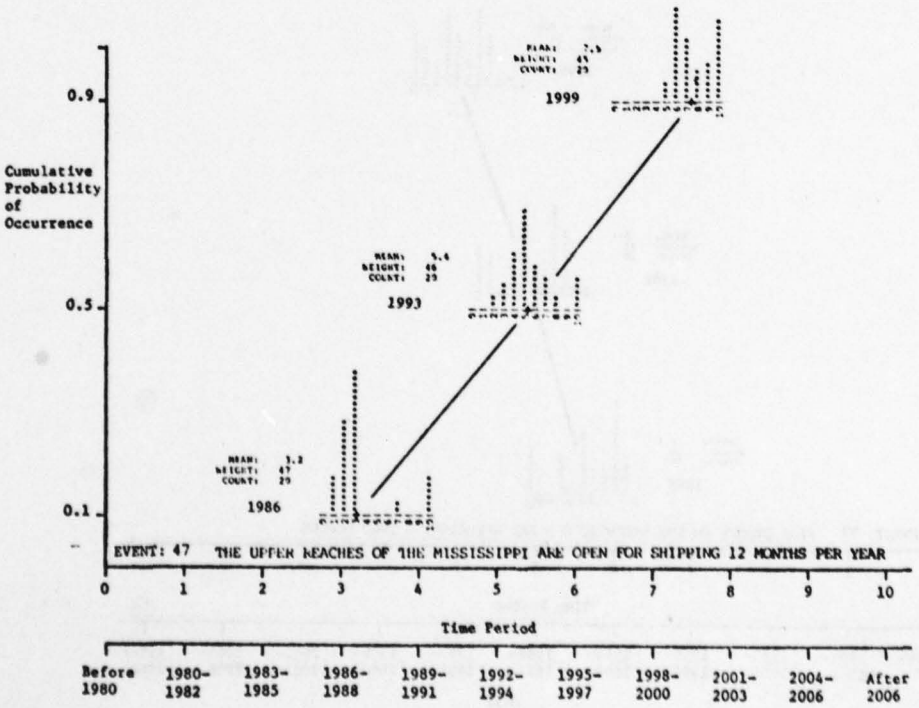

0.9
0.5
0.1
Cumulative Probability of Occurrence
1997
1992
1986
EVENT: 42 THERE WILL BE MORE THAN 15 MILLION PLEASURE BOATS IN THE U.S.
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

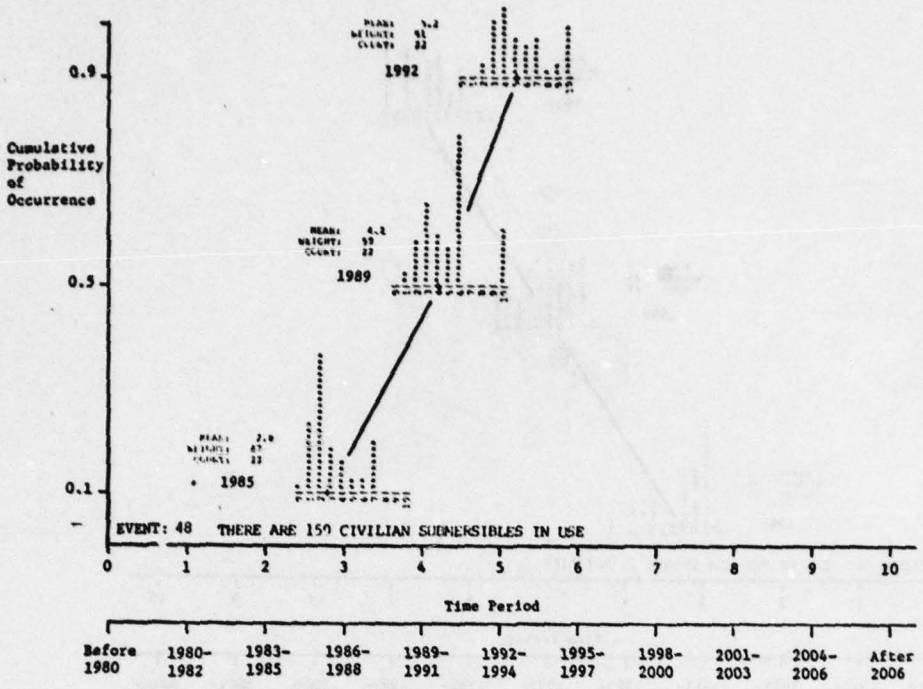

0.9
0.5
0.1
Cumulative Probability of Occurrence
1989
1987
1984
EVENT: 43 U.S. MERCHANT FLEET (> 5 GRT) WILL NUMBER 62,000(20% INCREASE OVER 1975)
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

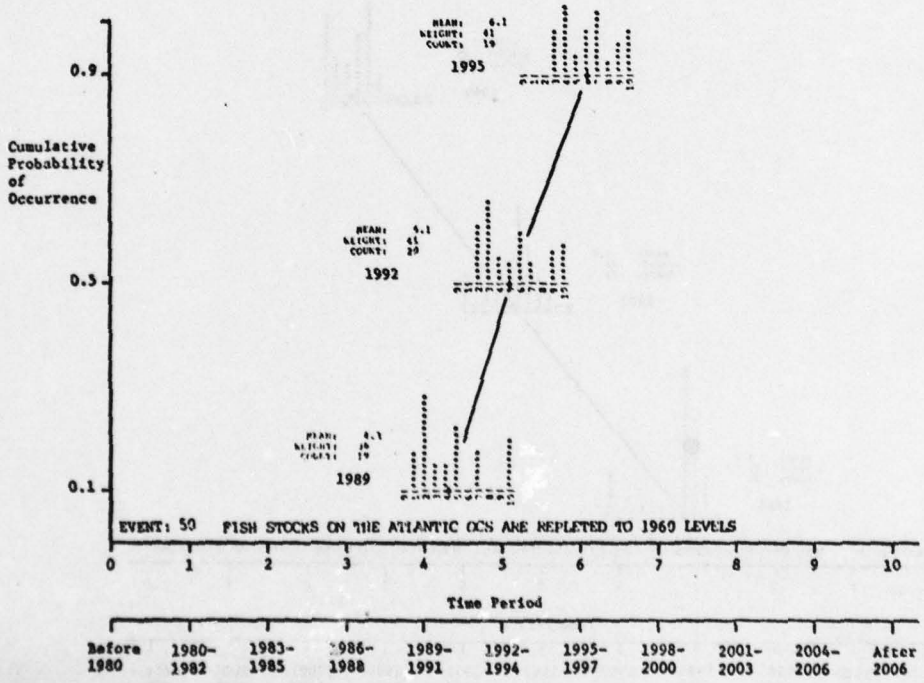

0.9
0.5
0.1
Cumulative Probability of Occurrence
1989
1986
1982
EVENT: 44 IMPORTS FROM SINO-SOVIET BLOC NATIONS DOUBLE OVER 1975 LEVELS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

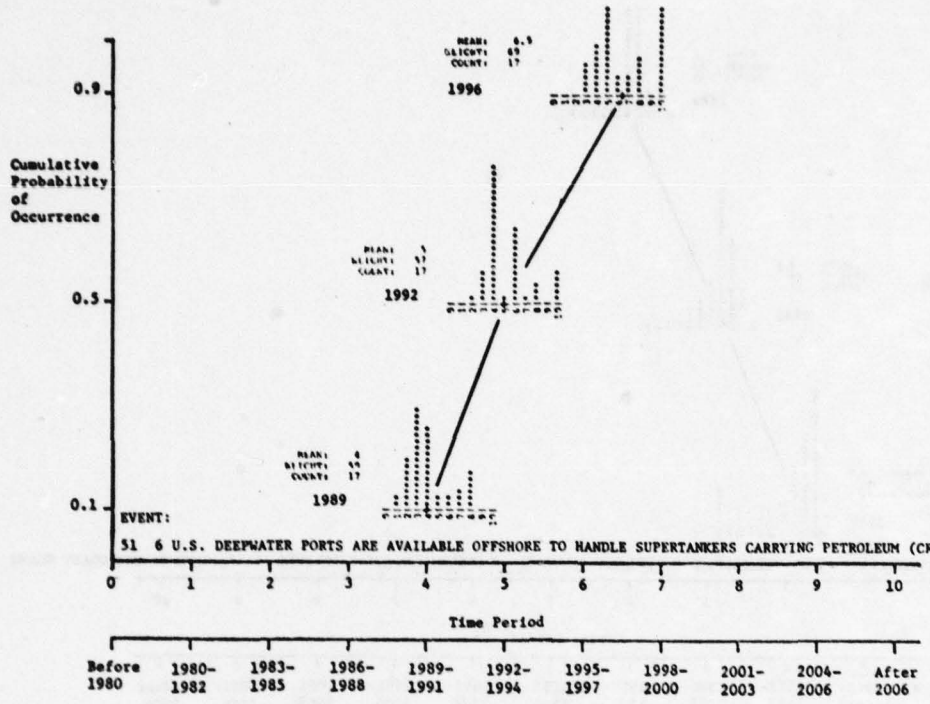

0.9
0.5
0.1
Cumulative Probability of Occurrence
1987
1984
1981
EVENT: 45 MAJOR UNDERWATER OIL PIPELINE BREAK OCCURS (100,000 GALLONS)
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
1997
1992
1986
EVENT: 46 LAW OF THE SEA TREATY IS RATIFIED
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

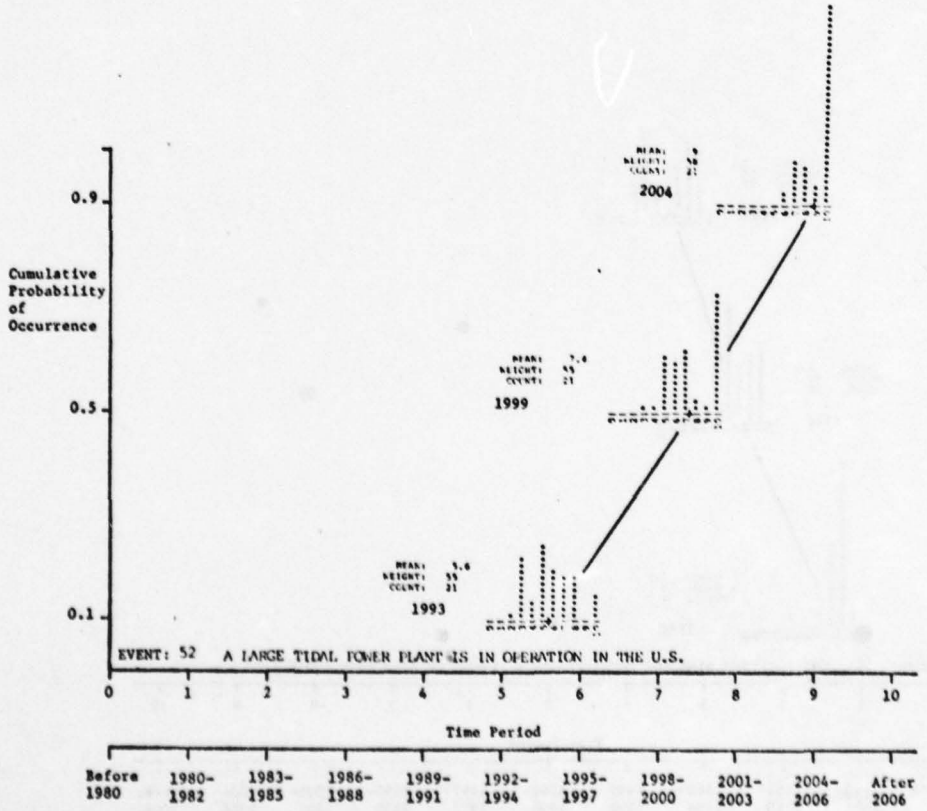

0.9
0.5
0.1
Cumulative Probability of Occurrence
1999
1993
1986
EVENT: 47 THE UPPER REACHES OF THE MISSISSIPPI ARE OPEN FOR SHIPPING 12 MONTHS PER YEAR
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
1992
1989
1985
EVENT: 48 THERE ARE 150 CIVILIAN SUBMERSIBLES IN USE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

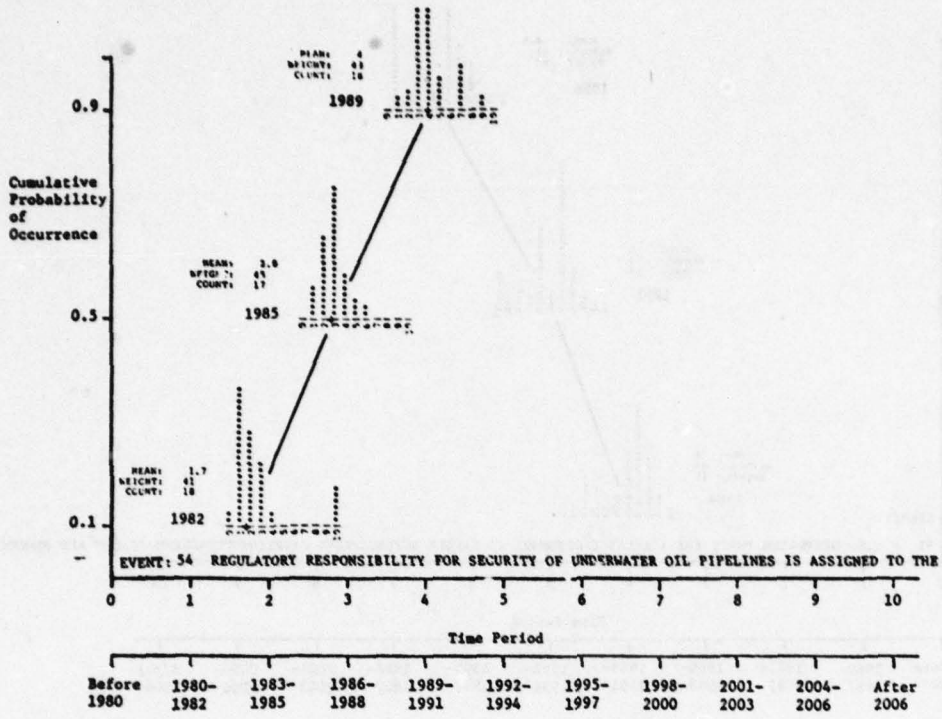

0.9
0.5
0.1
Cumulative Probability of Occurrence
1995
1992
1989
EVENT: 50 FISH STOCKS ON THE ATLANTIC OCS ARE REPLETED TO 1960 LEVELS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

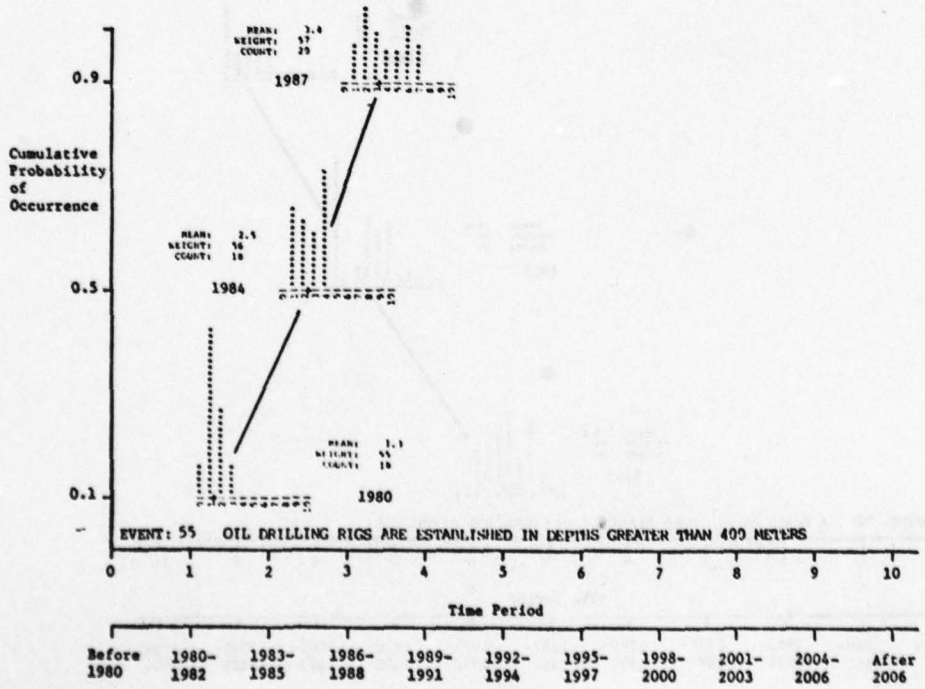


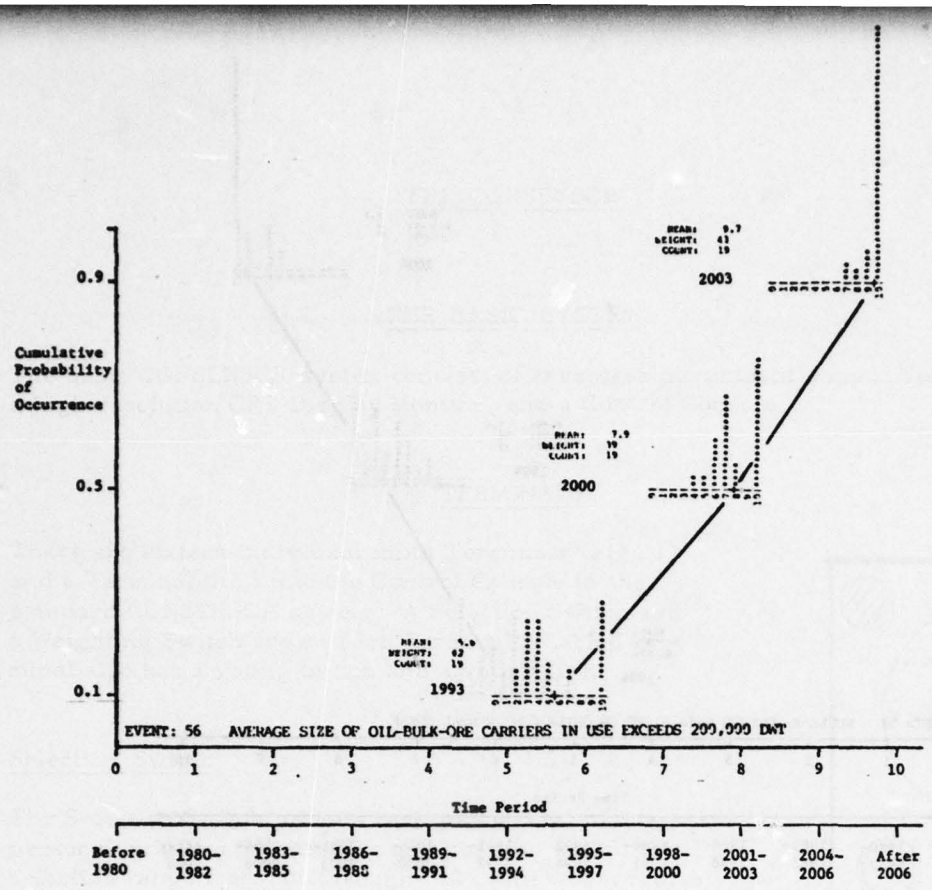
EVENT: 51 6 U.S. DEEPWATER PORTS ARE AVAILABLE OFFSHORE TO HANDLE SUPERTANKERS CARRYING PETROLEUM (CRUDE AND PRODUCTS)

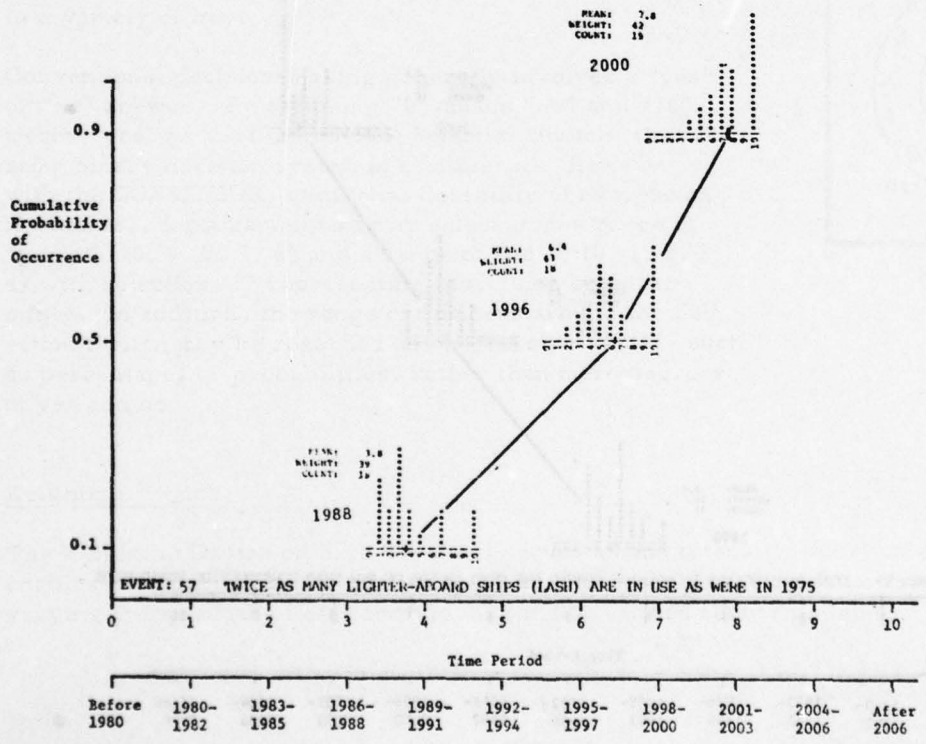


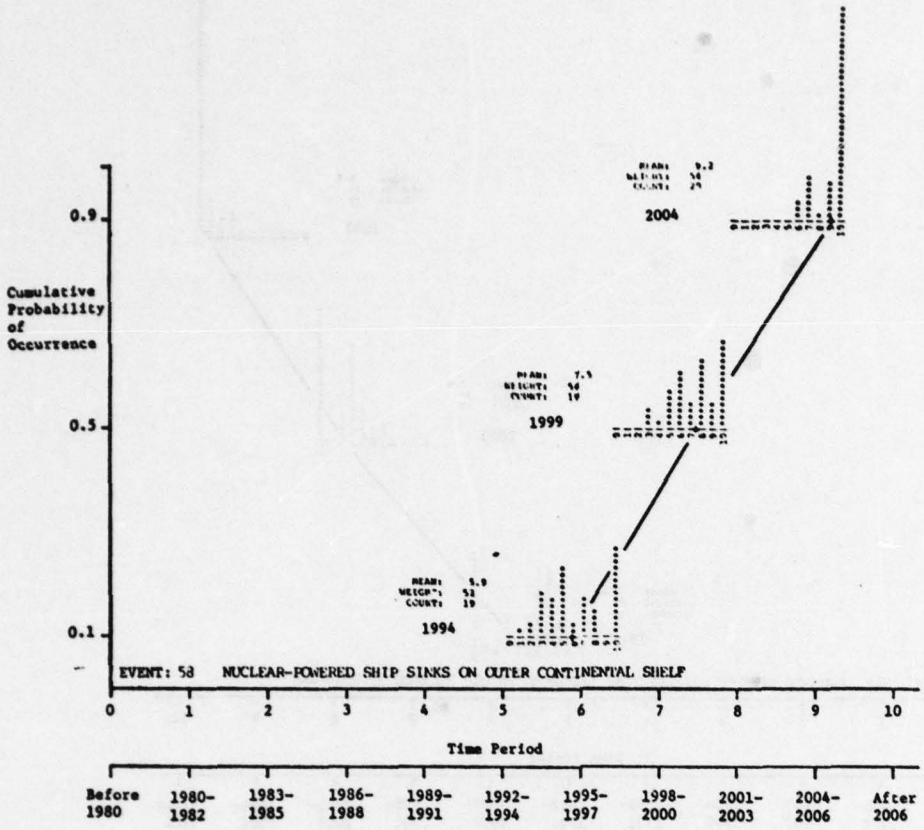
EVENT: 52 A LARGE TIDAL POWER PLANT IS IN OPERATION IN THE U.S.

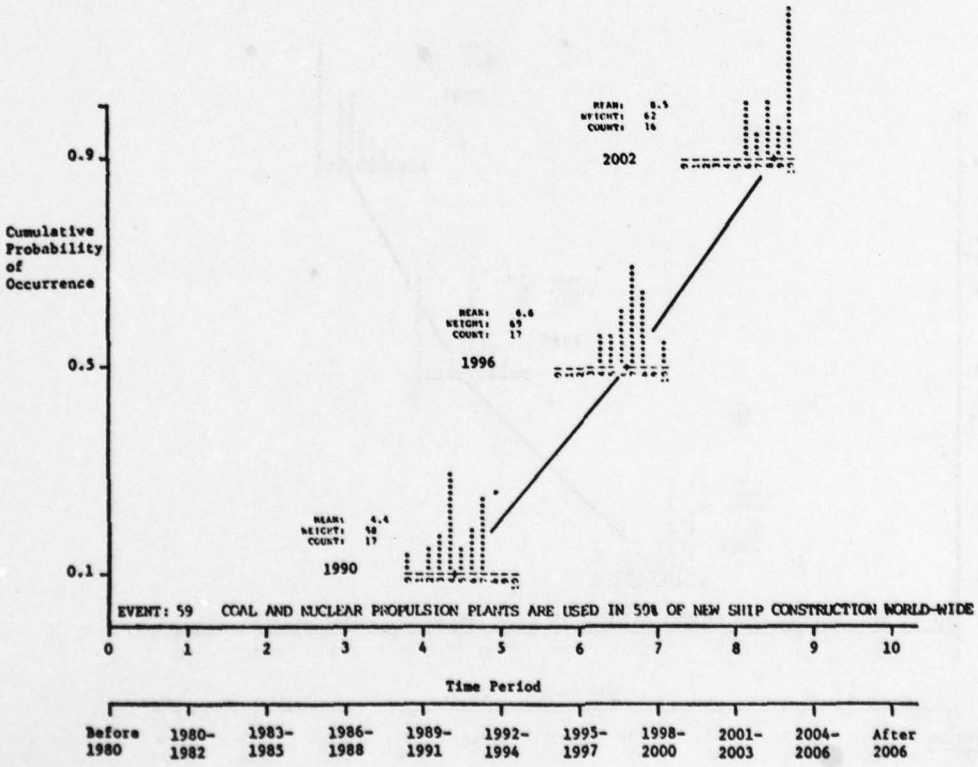

0.9
0.5
0.1
Cumulative Probability of Occurrence
1989
1985
1982
EVENT: 54 REGULATORY RESPONSIBILITY FOR SECURITY OF UNDERWATER OIL PIPELINES IS ASSIGNED TO THE COAST GUARD
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

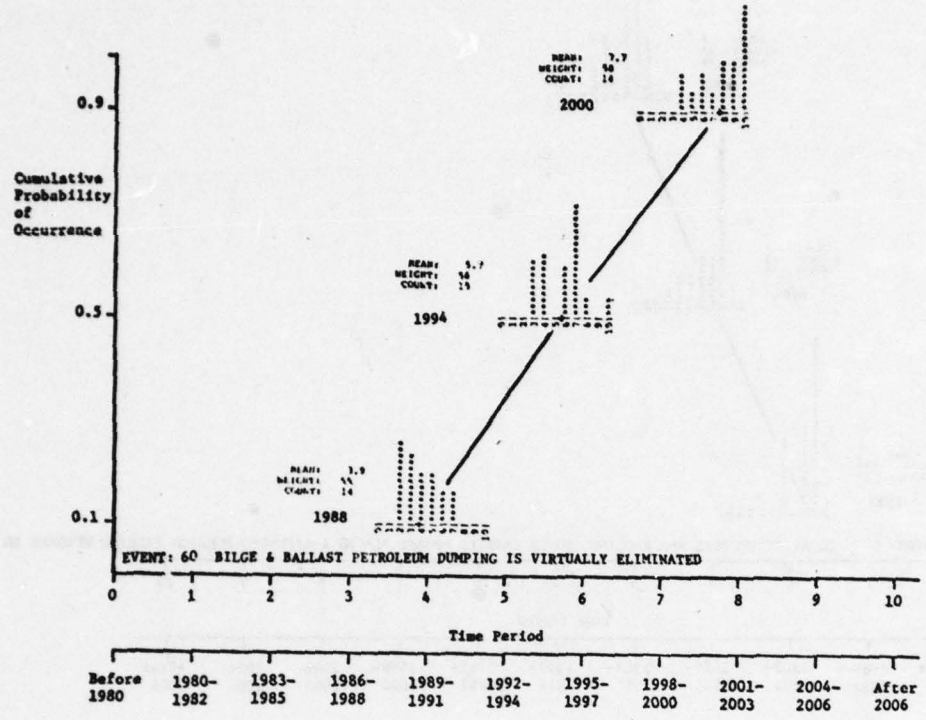

0.9
0.5
0.1
Cumulative Probability of Occurrence
1987
1984
1980
EVENT: 55 OIL DRILLING RIGS ARE ESTABLISHED IN DEPTHS GREATER THAN 400 METERS
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

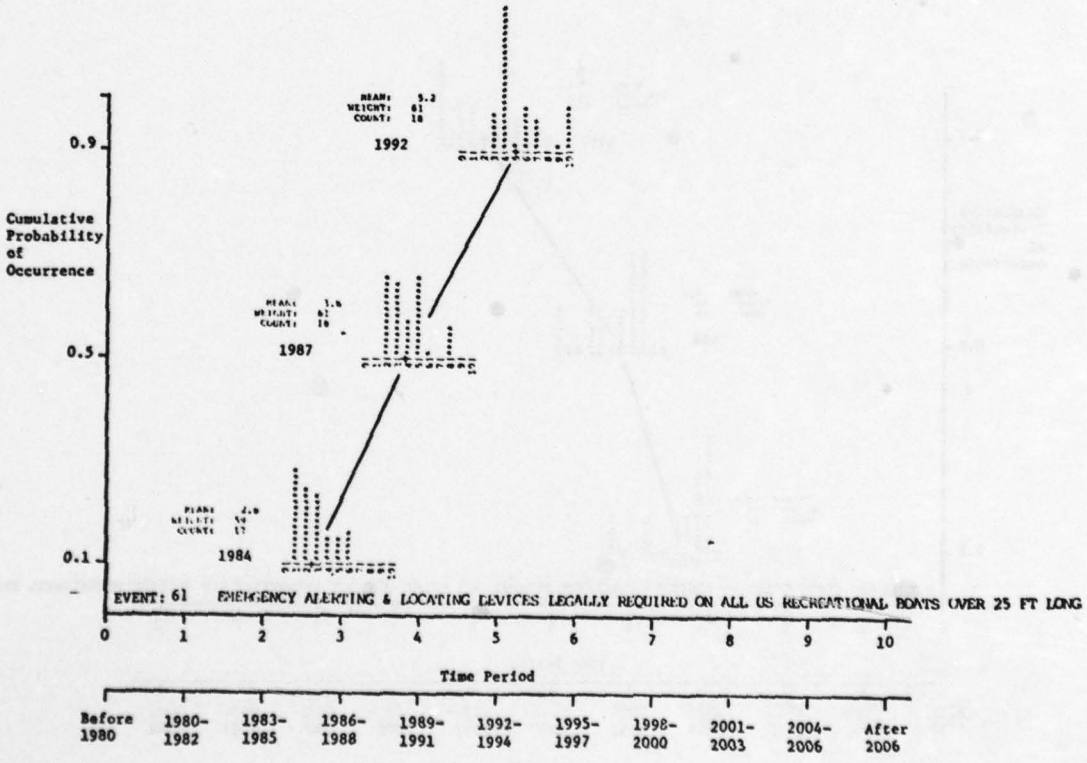

0.9
0.5
0.1
Cumulative Probability of Occurrence
2003
2000
1993
EVENT: 56 AVERAGE SIZE OF OIL-BULK-ORE CARRIERS IN USE EXCEEDS 200,000 DWT
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

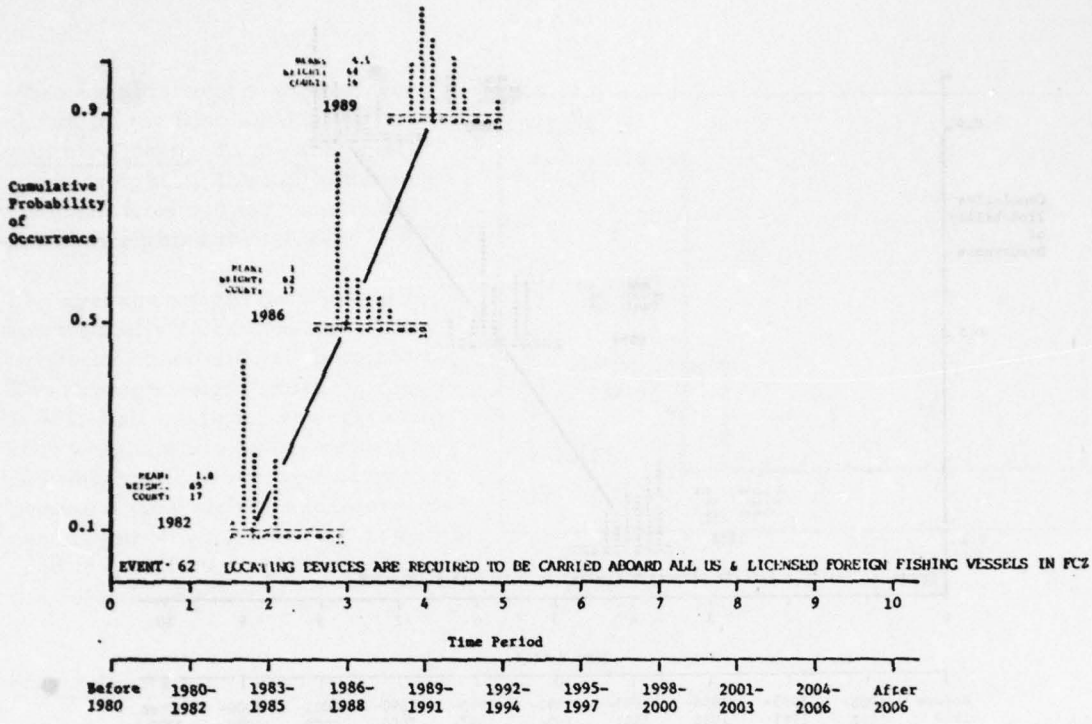

0.9
0.5
0.1
Cumulative Probability of Occurrence
2000
1996
1988
EVENT: 57 TWICE AS MANY LIGHTER-ABOARD SHIPS (LASH) ARE IN USE AS WERE IN 1975
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

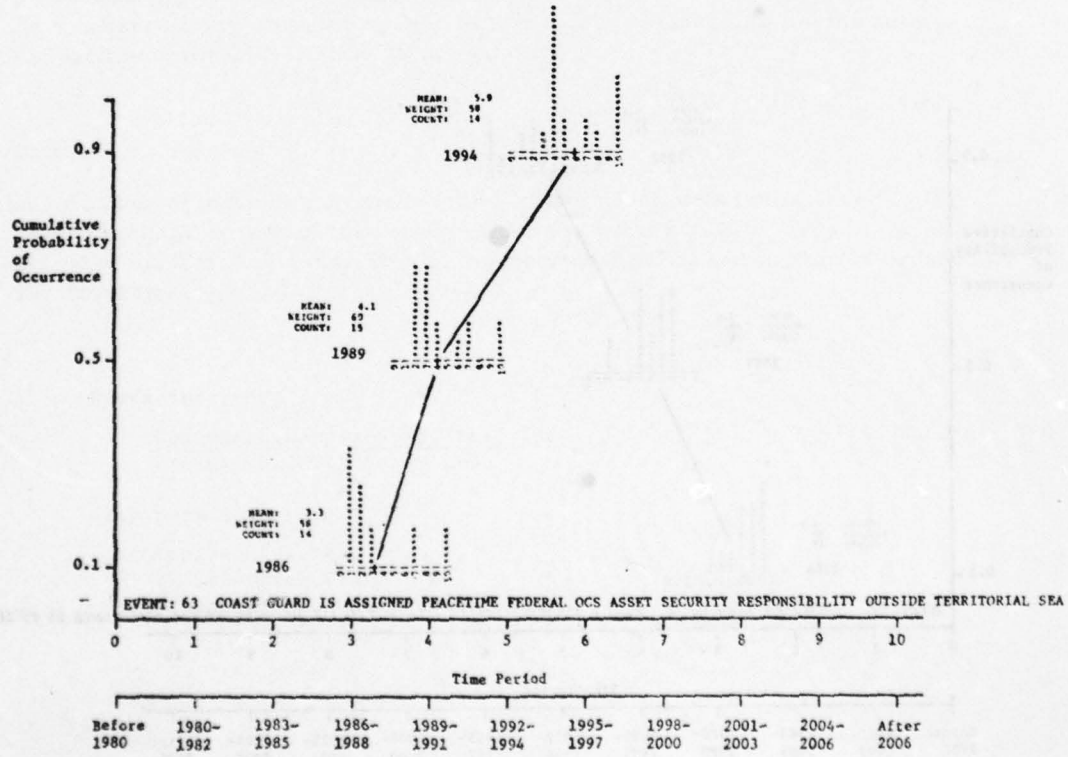

0.9
0.5
0.1
Cumulative Probability of Occurrence
2004
1999
1994
EVENT: 58 NUCLEAR-POWERED SHIP SINKS ON OUTER CONTINENTAL SHELF
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
2002
1996
1990
EVENT: 59 COAL AND NUCLEAR PROPULSION PLANTS ARE USED IN 50% OF NEW SHIP CONSTRUCTION WORLD-WIDE
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
2000
1994
1988
EVENT: 60 BILGE & BALLAST PETROLEUM DUMPING IS VIRTUALLY ELIMINATED
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


0.9
0.5
0.1
Cumulative Probability of Occurrence
1992
1987
1984
EVENT: 61 EMERGENCY ALERTING & LOCATING DEVICES LEGALLY REQUIRED ON ALL US RECREATIONAL BOATS OVER 25 FT LONG
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


Cumulative Probability of Occurrence
0.9
0.5
0.1
1989
1986
1982
EVENT: 62 LOCATING DEVICES ARE REQUIRED TO BE CARRIED ABOARD ALL US & LICENSED FOREIGN FISHING VESSELS IN FCZ
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006


Cumulative Probability of Occurrence
0.9
0.5
0.1
1994
1989
1986
EVENT: 63 COAST GUARD IS ASSIGNED PEACETIME FEDERAL OCS ASSET SECURITY RESPONSIBILITY OUTSIDE TERRITORIAL SEA
0 1 2 3 4 5 6 7 8 9 10
Time Period
Before 1980
1980-1982
1983-1985
1986-1988
1989-1991
1992-1994
1995-1997
1998-2000
2001-2003
2004-2006
After 2006

APPENDIX E

SURVEILLANCE INFORMATION ELEMENT WEIGHTS BY PROGRAM ACTIVITY

KEY TO COLUMN HEADINGS

NO.	Unique identification number.
SN	Scene: 0 implies a current requirement. 6 implies a future requirement.
PROG	Coast Guard Operating Program abbreviation.
PA	Program Activity code.
Program Activity	Distinct surveillance-related operation.
Function	Surveillance function.
SIE	Surveillance Information Element code.
Surveillance Information Element	Self-explanatory.
SCR	Score. An estimate of the importance of the Function/SIE to the performance of the Program Activity: Major (8) Moderate (4) Minor (2)
WT	Weight. For each Program Activity, the Function/SIE score normalized to 1000.

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
001	0	AN	1	BUOY SURVEILLANCE	DETECT	004	METAL BUOY	8	250
002	0	AN	1	BUOY SURVEILLANCE	DETECT	005	NON-METALLIC BUOY	8	250
003	0	AN	1	BUOY SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF BUOY	8	250
004	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	026	NUMBER OF BUOY	4	125
005	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	030	COLOR OF BUOY	2	62
006	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	031	SHAPE OF BUOY	2	62
007	0	AN	2	BEACON SURVEILLANCE	DETECT	004	BEACON, VISUAL OR RADAR	8	444
008	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	026	NUMBER OF BEACON	2	111
009	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	030	COLOR OF BEACON	2	111
010	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	031	SHAPE OF BEACON	2	111
011	0	AN	2	BEACON SURVEILLANCE	OBSERVE	035	VISIBLE OR RADAR DETECTION RANGE OF BEACON	2	111
012	0	AN	2	BEACON SURVEILLANCE	OBSERVE	036	VISIBILITY ARCS OF BEACON, IF APPLICABLE	2	111
013	0	AN	3	SURVEILLANCE OF LIGHTS	DETECT	018	MAJOR OR MINOR LIGHT OR LIGHTED BUOY	8	286
014	0	AN	3	SURVEILLANCE OF LIGHTS	IDENTIFY	030	COLOR OF LIGHT	8	286
015	0	AN	3	SURVEILLANCE OF LIGHTS	IDENTIFY	033	LIGHT CHARACTERISTIC	4	143
016	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	035	VISIBLE RANGE OF LIGHT	2	71
017	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	036	VISIBILITY ARCS OF LIGHT	2	71
018	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF LIGHT EMISSIONS	4	143
019	0	AN	4	RADIO BEACON SURVEILLANCE	DETECT	015	RADIO BEACON SIGNAL	8	364
020	0	AN	4	RADIO BEACON SURVEILLANCE	IDENTIFY	032	FREQUENCY OF RADIO BEACON SIGNAL	2	91
021	0	AN	4	RADIO BEACON SURVEILLANCE	IDENTIFY	033	CHARACTERISTIC CODE OF RADIO BEACON SIGNAL	8	364
022	0	AN	4	RADIO BEACON SURVEILLANCE	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF RADIO BEACON SIGNAL	4	182
023	0	AN	5	FOG SIGNAL SURVEILLANCE	DETECT	019	FOG SIGNAL	8	500
024	0	AN	5	FOG SIGNAL SURVEILLANCE	IDENTIFY	033	CHARACTERISTIC CODE OF FOG SIGNAL	4	250
025	0	AN	5	FOG SIGNAL SURVEILLANCE	OBSERVE	035	AUDIBLE RANGE OF FOG SIGNAL	2	125
026	0	AN	5	FOG SIGNAL SURVEILLANCE	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF FOG SIGNAL	2	125
027	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	DETECT	002	LARGE VESSELS USING WATERWAY	8	308
028	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSELS USING WATERWAY	8	308
029	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	LOCATE	022	BRIDGE-TO-VESSEL RANGE	2	77
030	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	OBSERVE	039	NUMBER OF TRANSITING VESSELS PER UNIT TIME	8	308
300	6	CVS	13	OFFSHORE PLATFORM INSPECTION	LOCATE	023	HORIZONTAL POSITION OF DEFECT IN THE STRUCTURE	4	250
301	6	CVS	13	OFFSHORE PLATFORM INSPECTION	LOCATE	024	VERTICAL POSITION OF DEFECT IN THE STRUCTURE	4	250
299	6	CVS	13	OFFSHORE PLATFORM INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY	8	500
293	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	LOCATE	023	HORIZONTAL POSITION OF DEFECT IN THE STRUCTURE	4	250
294	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	LOCATE	024	VERTICAL POSITION OF DEFECT IN THE STRUCTURE	4	250
292	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY	8	500
298	6	CVS	15	UNDERSEA PIPELINE INSPECTION	DETECT	013	LIQUID LEAKAGE FROM PIPELINE	8	333
296	6	CVS	15	UNDERSEA PIPELINE INSPECTION	LOCATE	022	HORIZONTAL POSITION OF DEFECT IN THE PIPELINE	4	167
297	6	CVS	15	UNDERSEA PIPELINE INSPECTION	LOCATE	025	GEOGRAPHICAL POSITION OF DEFECT	4	167
295	6	CVS	15	UNDERSEA PIPELINE INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY OF PIPELINE	8	333

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
031	0	ELT	20	FISHING VESSEL SURVEILLANCE	DETECT	002	LARGE VESSEL	8	125
032	0	ELT	20	FISHING VESSEL SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL	8	125
033	0	ELT	20	FISHING VESSEL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF FISHING VESSEL	8	125
034	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF FISHING VESSEL	4	62
035	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF FISHING VESSEL	4	62
036	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL; TYPE OF FISHING VESSEL	2	31
037	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	037	FISHING VESSEL MOVEMENT	2	31
038	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	040	FISHING ACTIVITY (GEAR AND TECHNIQUE)	2	31
039	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	041	FISHERY SUPPORT OPERATIONS	2	31
040	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	044	SUSPICIOUS ACTIVITY (FLEEING)	2	31
041	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	048	SPECIES OF FISH CAUGHT	8	125
042	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	049	SIZE OF FISH CAUGHT	8	125
043	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	050	QUANTITY OF FISH CAUGHT	8	125
044	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	002	LARGE VESSEL	8	133
045	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL	8	133
046	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	004	SMALL VESSEL	8	133
047	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	005	FISH TRAP MARKER	8	133
048	0	ELT	21	GEAR CONFLICT SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF VESSELS AND MARKERS	8	133
049	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	026	FISHING VESSEL NAME OR NUMBER; MARKER NUMBER	4	67
050	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF FISHING VESSEL	4	67
051	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL; TYPE OF FISHING VESSEL	2	33
052	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	037	FISHING VESSEL MOVEMENT	4	67
053	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	040	FISHING ACTIVITY (GEAR AND TECHNIQUE)	4	67
054	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY	2	33
055	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	002	LARGE VESSEL	4	44
056	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL	8	69
057	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	004	SMALL VESSEL	8	89
058	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	LOCATE	023	RANGE AND BEARING TO SMUGGLING VESSEL	4	44
059	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF SMUGGLING VESSEL	8	69
060	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF SMUGGLING VESSEL	8	89
061	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF SMUGGLING VESSEL	4	44
062	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	029	VESSEL TYPE	2	22
063	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	037	SMUGGLING VESSEL MOVEMENT	8	89
064	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY (HOVERING)	4	44
065	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	043	SUSPICIOUS ACTIVITY (TRANSFERRING CARGO)	4	44
066	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	044	SUSPICIOUS ACTIVITY (FLEEING)	4	44
067	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	052	CONTRABAND (DRUGS)	8	89
068	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	053	CONTRABAND (WEAPONS AND MUNITIONS)	8	89
069	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	054	ILLEGAL ALIENS	8	89

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
280	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	002	LARGE MINING VESSEL OR FLOATING PLANT	8	143
281	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	007	SOLID POLLUTANT/EFFLUENT	8	143
282	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	011	SEA BOTTOM	4	71
284	6	ELT	23	UNDERSEA MINING SURVEILLANCE	LOCATE	024	DEPTH CHANGES RESULTING FROM MINING	2	36
283	6	ELT	23	UNDERSEA MINING SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF MINING VESSEL OR FLOATING PLANT	4	71
285	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF MINING VESSEL OR FLOATING PLANT	4	71
286	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	027	NATIONALITY OF MINING VESSEL OR FLOATING PLANT	4	71
287	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	029	TYPE OF MINING/MINING FACILITY	2	36
288	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	037	MOVEMENT OF MINING VESSEL OR FLOATING PLANT	4	71
289	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	045	SUSPICIOUS ACTIVITY (DISCHARGING POLLUTANTS)	4	71
290	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY	8	143
291	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	057	AREA COVERED BY EFFLUENT	4	71
070	0	IO	30	ICE SURVEILLANCE	DETECT	006	ICE FIELDS	8	222
071	0	IO	30	ICE SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF ICE FIELDS	8	222
072	0	IO	30	ICE SURVEILLANCE	IDENTIFY	029	TYPE OF ICE	4	111
073	0	IO	30	ICE SURVEILLANCE	OBSERVE	037	ICE MOVEMENT	4	111
074	0	IO	30	ICE SURVEILLANCE	OBSERVE	055	ICE THICKNESS	8	222
075	0	IO	30	ICE SURVEILLANCE	OBSERVE	057	AREA COVERED BY ICE	4	111
076	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	DETECT	006	ICE JAMS	8	364
077	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF ICE JAMS	4	182
078	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	037	ICE MOVEMENT	4	182
079	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	055	ICE THICKNESS	4	182
080	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	057	AREA COVERED BY ICE	2	91
268	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS	8	138
081	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANT	8	138
269	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS	4	69
270	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION	8	138
082	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT	8	138
083	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT	4	69
084	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT	4	69
085	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT	2	34
086	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT	4	69
271	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES	4	69
272	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES	4	69
273	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS	8	125
087	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANT	8	125
274	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS	8	125
275	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION	8	125
088	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT	8	125
089	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT	8	125
090	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT	4	62
091	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT	4	62
092	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT	4	62
276	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES	2	31
277	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES	2	31

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
327	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS	4	87
328	0	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANTS	8	174
335	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS	4	87
334	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION	4	87
329	0	MEP	42	INT'L POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT	8	174
330	0	MEP	42	INT'L POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT	4	87
331	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT	4	87
332	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT	2	43
333	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT	4	87
336	6	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES	2	43
337	6	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES	2	43
093	0	MOMP	50	AAW SURVEILLANCE	DETECT	001	AIRCRAFT, MISSILE	8	235
094	0	MOMP	50	AAW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF AIRCRAFT/MISSILE	8	235
095	0	MOMP	50	AAW SURVEILLANCE	LOCATE	024	ALTITUDE OF AIRCRAFT/MISSILE	4	118
096	0	MOMP	50	AAW SURVEILLANCE	IDENTIFY	028	CHARACTER OF AIRCRAFT (FRIEND OR FOE)	4	118
097	0	MOMP	50	AAW SURVEILLANCE	IDENTIFY	029	TYPE OF AIRCRAFT OR MISSILE	2	59
098	0	MOMP	50	AAW SURVEILLANCE	OBSERVE	037	MOVEMENT OF AIRCRAFT OR MISSILE	4	118
099	0	MOMP	50	AAW SURVEILLANCE	OBSERVE	046	HOSTILE AIRCRAFT ACTIVITY	4	118
100	0	MOMP	51	ASUW SURVEILLANCE	DETECT	002	LARGE VESSEL	8	167
101	0	MOMP	51	ASUW SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL	8	167
102	0	MOMP	51	ASUW SURVEILLANCE	DETECT	004	SMALL VESSEL	8	167
103	0	MOMP	51	ASUW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF VESSEL	8	167
104	0	MOMP	51	ASUW SURVEILLANCE	IDENTIFY	028	VESSEL CHARACTER (FRIEND OR FOE)	4	83
105	0	MOMP	51	ASUW SURVEILLANCE	IDENTIFY	029	VESSEL TYPE OR CLASS	4	83
106	0	MOMP	51	ASUW SURVEILLANCE	OBSERVE	037	VESSEL MOVEMENT	4	83
107	0	MOMP	51	ASUW SURVEILLANCE	OBSERVE	046	HOSTILE VESSEL ACTIVITY	4	83
108	0	MOMP	52	ASW SURVEILLANCE	DETECT	010	LARGE SUBMERGED SUBMARINE	8	235
109	0	MOMP	52	ASW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF SUBMARINE	8	235
110	0	MOMP	52	ASW SURVEILLANCE	LOCATE	024	DEPTH OF SUBMARINE	4	118
111	0	MOMP	52	ASW SURVEILLANCE	IDENTIFY	028	SUBMARINE CHARACTER (FRIEND OR FOE)	4	118
112	0	MOMP	52	ASW SURVEILLANCE	IDENTIFY	029	SUBMARINE TYPE OR CLASS	2	59
113	0	MOMP	52	ASW SURVEILLANCE	OBSERVE	037	SUBMARINE MOVEMENT	4	116
114	0	MOMP	52	ASW SURVEILLANCE	OBSERVE	046	HOSTILE SUBMARINE ACTIVITY	4	118
115	0	MOMP	53	NGFS SURVEILLANCE	DETECT	034	LAND TARGET OR AIMING POINT	8	267
116	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF TARGET/AIMING POINT	8	267
117	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	024	ALTITUDE OF TARGET/AIMING POINT	2	67
118	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF TARGET/AIMING POINT	4	133
119	0	MOMP	53	NGFS SURVEILLANCE	IDENTIFY	029	TARGET TYPE	2	67
120	0	MOMP	53	NGFS SURVEILLANCE	OBSERVE	035	FALL OF SHOT	2	67
121	0	MOMP	53	NGFS SURVEILLANCE	OBSERVE	037	TARGET MOVEMENT	2	67
122	0	MOMP	53	NGFS SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY OF TARGET	2	67

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
123	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	012	FLOODED TERRAIN	8	98
124	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	014	GASEOUS CHEMICAL AGENT	8	98
125	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	017	HEAT FROM FIRES AND EXPLOSIONS	4	49
126	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	021	NUCLEAR RADIATION	8	98
127	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION	8	98
128	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	IDENTIFY	029	TYPE OF EXPLOSIVE OR CHEMICAL AGENT	8	98
129	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	037	FLOOD, FIRE, FALLOUT, GAS CLOUD MOVEMENT	8	98
130	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITIES OF VICTIMS OR MOBS	8	98
131	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	056	SIZE OF NUCLEAR BURST, EXPLOSION, ETC.	4	49
132	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	057	AREA AFFECTED BY DISASTER	4	49
133	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	066	WIND VELOCITY	2	24
134	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	067	NATURE OF DISTRESS: DAMAGE AND INJURIES	4	49
135	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	068	NATURE OF DISTRESS: FIRE OR EXPLOSION	4	49
136	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	069	NATURE OF DISTRESS: FLOODING	4	49
137	0	MSA	60	ICEBERG SURVEILLANCE	DETECT	004	LARGE ICEBERG	8	211
138	0	MSA	60	ICEBERG SURVEILLANCE	DETECT	005	GROWLER	8	211
139	0	MSA	60	ICEBERG SURVEILLANCE	LOCATE	025	GEOGRAPHIC POSITION	8	211
140	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	037	ICEBERG MOVEMENT	4	105
141	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	056	SIZE OF ICEBERG	2	53
142	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	057	ICEBERG HAZARD AREA	8	211
143	0	MSA	61	SEA TEMPERATURE SURVEYS	DETECT	017	SURFACE SEA TEMPERATURE	8	500
144	0	MSA	61	SEA TEMPERATURE SURVEYS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION	8	500
145	0	MSA	62	OCEAN SOUNDINGS PROGRAM	DETECT	011	SEA BOTTOM	8	333
146	0	MSA	62	OCEAN SOUNDINGS PROGRAM	LOCATE	024	OBSERVED DEPTH	8	333
147	0	MSA	62	OCEAN SOUNDINGS PROGRAM	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION	8	333
150	0	MSA	63	STANDARD OCEANO. SECTIONS	DETECT	012	SEA SURFACE	8	333
148	0	MSA	63	STANDARD OCEANO. SECTIONS	LOCATE	025	GEOGRAPHICAL POSITION OF SECTION	8	333
149	0	MSA	63	STANDARD OCEANO. SECTIONS	OBSERVE	037	SURFACE CURRENT VELOCITY	8	333
151	0	MSA	64	BATHYTHERMOGRAPH OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION	8	500
152	0	MSA	64	BATHYTHERMOGRAPH OBSERVATIONS	OBSERVE	060	PRESSURE (DEPTH) VERSUS TEMPERATURE PROFILE	8	500
153	0	MSA	65	TARBALL OBSERVATIONS	DETECT	007	TARBALLS	8	250
154	0	MSA	65	TARBALL OBSERVATIONS	LOCATE	025	GEOGRAPHIC POSITION OF OBSERVATION	8	250
155	0	MSA	65	TARBALL OBSERVATIONS	OBSERVE	039	NUMBER OF TARBALLS	8	250
156	0	MSA	65	TARBALL OBSERVATIONS	OBSERVE	056	SIZE OF TARBALLS	4	125
157	0	MSA	65	TARBALL OBSERVATIONS	OBSERVE	057	SIZE OF AREA IN WHICH TARBALLS FOUND	4	125
158	0	MSA	66	SURFACE CURRENT OBSERVATIONS	DETECT	012	SEA SURFACE	8	333
159	0	MSA	66	SURFACE CURRENT OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION	8	333
160	0	MSA	66	SURFACE CURRENT OBSERVATIONS	OBSERVE	037	SURFACE CURRENT VELOCITY	8	333

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
161	0	MSA	67	NATIONAL DATA BUOY PROGRAM	DETECT	004	DATA BUOY	8	211
162	0	MSA	67	NATIONAL DATA BUOY PROGRAM	DETECT	015	BUOY TELEMETRY TRANSMISSION	8	211
163	0	MSA	67	NATIONAL DATA BUOY PROGRAM	LOCATE	025	GEOGRAPHICAL POSITION OF BUOY	8	211
164	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	026	BUOY NUMBER	2	53
165	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	032	DATA BUOY RADIO TRANSMISSION FREQUENCY	4	105
166	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	033	CHARACTERISTIC OF DATA BUOY TELEMETRY SIGNAL	4	105
168	0	MSA	67	NATIONAL DATA BUOY PROGRAM	OBSERVE	038	DATA BUOY TRANSMISSION TIME SCHEDULE	4	105
175	0	MSA	68	SURFACE WEATHER OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION	8	167
176	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	037	MOVEMENT OF CLOUDS, SURFACE SWELLS	4	83
177	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	057	CLOUD COVERAGE (PERCENT)	2	42
178	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	058	HEIGHT OF SEAS AND SWELLS	4	83
179	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	059	PERIOD OF SEAS AND SWELLS	4	83
180	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	062	SURFACE WEATHER: TEMPERATURE	4	83
181	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	063	ATMOSPHERIC PRESSURE	8	167
182	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	064	SURFACE WEATHER: HUMIDITY	4	83
183	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	065	CLOUD TYPES	2	42
184	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	066	SURFACE WIND VELOCITY	8	167
185	0	PSS	75	FACILITY INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY OF FACILITY	8	500
278	0	PSS	75	FACILITY INSPECTION	OBSERVE	047	HAZARDOUS CONDITIONS OR ACTIVITIES	8	500
186	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	002	LARGE VESSEL	8	93
187	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL	8	93
188	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	021	NUCLEAR RADIATION	8	93
189	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF SPECIAL INTEREST VESSEL	8	93
190	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF SPECIAL INTEREST VESSEL	4	47
191	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF SPECIAL INTEREST VESSEL	4	47
192	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL	2	23
193	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	037	VESSEL MOVEMENT	8	93
194	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY (HOVERING)	4	47
195	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	043	SUSPICIOUS ACTIVITY (TRANSFERRING CARGO)	8	93
196	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY	8	93
197	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	051	CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES	8	93
198	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	053	CONTRABAND: WEAPONS AND MUNITIONS	4	47
199	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	054	ILLEGAL ALIENS	4	47

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
200	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	002	LARGE THREATENING VESSELS	8	89
201	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	003	MEDIUM-SIZED THREATENING VESSELS	8	89
202	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	004	SMALL THREATENING VESSELS	8	89
203	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	005	PERSONNEL THREATS: SURFACE	8	89
204	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	038	PERSONNEL THREATS: SUBSURFACE	8	89
205	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF THREATENING VESSELS	4	44
206	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	LOCATE	024	DEPTH OF SWIMMERS	2	22
207	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	026	VESSEL NAME OR NUMBER	4	44
208	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF VESSEL	4	44
209	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	029	TYPE OF THREAT	8	89
210	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	037	MOVEMENT OF THREAT	4	44
211	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY	8	89
212	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY	8	89
213	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY	8	89
214	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	002	LARGE THREATENING/THREATENED VESSELS	8	143
215	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	003	MEDIUM-SIZED THREATENING/THREATENED VESSELS	8	143
216	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	004	SMALL THREATENING/THREATENED VESSELS	8	143
217	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	LOCATE	023	RANGE AND BEARING OF THREATENING/THREATENED VESSELS	4	71
218	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	LOCATE	025	GEOGRAPHICAL POSITION OF SELECTED VESSEL	4	71
219	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	IDENTIFY	026	NAME OR NUMBER OF VESSELS INVOLVED	4	71
220	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	IDENTIFY	027	NATIONALITIES (FLAGS) OF VESSELS INVOLVED	4	71
221	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	OBSERVE	037	MOVEMENTS OF VESSELS INVOLVED	8	143
222	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	OBSERVE	047	HAZARDOUS ACTIVITIES	8	143
223	0	PSS	79	VESSEL TRAFFIC SERVICES	DETECT	002	LARGE VESSEL IN VTS SYSTEM	8	133
224	0	PSS	79	VESSEL TRAFFIC SERVICES	DETECT	003	MEDIUM-SIZED VESSEL IN VTS SYSTEM	8	133
225	0	PSS	79	VESSEL TRAFFIC SERVICES	LOCATE	023	RANGE AND BEARING TO VESSELS IN VTS SYSTEM	8	133
226	0	PSS	79	VESSEL TRAFFIC SERVICES	LOCATE	025	GEOGRAPHICAL POSITION OF VESSELS IN VTS SYSTEM	8	133
227	0	PSS	79	VESSEL TRAFFIC SERVICES	IDENTIFY	026	NAMES OR NUMBERS OF VESSELS IN VTS SYSTEM	4	67
228	0	PSS	79	VESSEL TRAFFIC SERVICES	IDENTIFY	029	TYPES OF VESSELS IN VTS SYSTEM	2	33
229	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	037	VESSEL MOVEMENTS	8	133
230	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	039	NUMBER OF VESSELS PER TIME INTERVAL	2	33
231	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	047	HAZARDOUS ACTIVITIES OR MANEUVERS	8	133
232	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	056	SIZES OF VESSELS IN VTS SYSTEM	4	67
302	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	001	APPROACHING AIRCRAFT	8	89
303	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	003	MEDIUM-SIZED VESSEL	8	89
304	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	004	SMALL VESSEL	8	89
305	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	005	SURFACE SWIMMER	8	89
306	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	008	UNDERWATER SWIMMER	8	89
307	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	009	SMALL SUBMERGED SUBMERSIBLE	8	89
308	6	PSS	80	OFFSHORE ASSET PROTECTION	LOCATE	023	RANGE AND BEARING OF THREAT	4	44
309	6	PSS	80	OFFSHORE ASSET PROTECTION	LOCATE	024	DEPTH OF SWIMMER/SUBMERSIBLE	2	22
310	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	026	NAME OR NUMBER OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE	2	22
311	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	027	NATIONALITY OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE	2	22
312	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	029	TYPE OF THREAT	8	89
313	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	037	MOVEMENT OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE/SWIMMER	4	44
314	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	042	SUSPICIOUS AIRCRAFT/VESSEL/SUBMERSIBLE ACTIVITY	4	44
315	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	046	HOSTILE AIRCRAFT/VESSEL/SUBMERSIBLE ACTIVITY	8	89
316	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	053	WEAPONS/MUNITIONS CARRIED BY THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE	8	89

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
233	0	RBS	87	REGATTA SURVEILLANCE	DETECT	003	MEDIUM-SIZED PARTICIPATING/INTRUDING/ENDANGERED VESSELS	8	167
234	0	RBS	87	REGATTA SURVEILLANCE	DETECT	004	SMALL PARTICIPATING/INTRUDING/ENDANGERED VESSELS	8	167
235	0	RBS	87	REGATTA SURVEILLANCE	DETECT	005	ENDANGERED SWIMMERS	8	167
236	0	RBS	87	REGATTA SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF INTRUDER	4	83
237	0	RBS	87	REGATTA SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF INTRUDING/ENDANGERED VESSEL	4	83
238	0	RBS	87	REGATTA SURVEILLANCE	OBSERVE	037	MOVEMENT OF PARTICIPATING/INTRUDING/ENDANGERED VESSELS AND SWIMMERS	8	167
239	0	RBS	87	REGATTA SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY	8	167
240	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	015	RADIO TRANSMISSIONS FROM ALERTING/LOCATING DEVICE	8	129
241	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	018	LIGHT EMISSIONS FROM ALERTING/LOCATING DEVICE	8	129
341	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	019	ALERTING/LOCATING AIRBORNE SOUND EMISSIONS	8	129
279	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	020	ALERTING/LOCATING WATERBORNE SOUND EMISSIONS	8	129
243	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	022	RANGE OR BEARING OF EMITTER	8	129
244	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	023	RANGE AND BEARING OF EMITTER	4	65
245	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	025	GEOGRAPHICAL POSITION OF EMITTER	4	65
246	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	026	NAME OR NUMBER OF CALLING UNIT	4	65
247	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	029	TYPE OF EMITTER AND CALLING UNIT	4	65
248	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	032	FREQUENCY OF ALERTING/LOCATING RADIO SIGNAL	2	32
249	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	033	CHARACTERISTIC CODE OF ALERTING/LOCATING SIGNAL	2	32
250	0	SAR	90	ALERTING AND LOCATING SYSTEMS	OBSERVE	037	MOVEMENT OF CALLING UNIT	2	32
251	0	SAR	91	SURFACE SEARCH	DETECT	002	LARGE VESSEL	8	87
252	0	SAR	91	SURFACE SEARCH	DETECT	003	MEDIUM-SIZED VESSEL	8	87
253	0	SAR	91	SURFACE SEARCH	DETECT	004	SMALL VESSEL, AFLOAT SEAPLANE	8	87
254	0	SAR	91	SURFACE SEARCH	DETECT	005	MAN IN WATER, DITCHED AIRCRAFT	8	87
255	0	SAR	91	SURFACE SEARCH	LOCATE	022	RANGE OR BEARING OF SEARCH OBJECT	8	87
256	0	SAR	91	SURFACE SEARCH	LOCATE	023	RANGE AND BEARING OF SEARCH OBJECT	4	43
257	0	SAR	91	SURFACE SEARCH	LOCATE	025	GEOGRAPHICAL POSITION OF SEARCH OBJECT	4	43
258	0	SAR	91	SURFACE SEARCH	IDENTIFY	026	NAME OR NUMBER OF SEARCH OBJECT	4	43
259	0	SAR	91	SURFACE SEARCH	IDENTIFY	029	TYPE OF SEARCH OBJECT	4	43
260	0	SAR	91	SURFACE SEARCH	IDENTIFY	030	COLOR OF SEARCH OBJECT	2	22
261	0	SAR	91	SURFACE SEARCH	IDENTIFY	031	SHAPE (APPEARANCE) OF SEARCH OBJECT	2	22
262	0	SAR	91	SURFACE SEARCH	OBSERVE	037	MOVEMENT OF SEARCH OBJECT	2	22
263	0	SAR	91	SURFACE SEARCH	OBSERVE	056	SIZE OF SEARCH OBJECT	2	22
264	0	SAR	91	SURFACE SEARCH	OBSERVE	067	NATURE OF DISTRESS: DISABLED OR INJURED	4	43
265	0	SAR	91	SURFACE SEARCH	OBSERVE	068	NATURE OF DISTRESS: AFIRE	8	87
266	0	SAR	91	SURFACE SEARCH	OBSERVE	069	NATURE OF DISTRESS: SINKING	8	87
267	0	SAR	91	SURFACE SEARCH	OBSERVE	070	NATURE OF DISTRESS: AGROUND	8	87

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT	SIE SCR	SIE WT.
317	6	SAR	92	UNDERWATER SEARCH	DETECT	009	SMALL SUBMERGED SUBMERSIBLE OR SUNKEN VESSEL	8	167
318	6	SAR	92	UNDERWATER SEARCH	DETECT	020	SOUND EMISSION IN WATER	4	83
319	6	SAR	92	UNDERWATER SEARCH	LOCATE	023	RANGE AND BEARING OF SUBMERSIBLE	8	167
320	6	SAR	92	UNDERWATER SEARCH	LOCATE	024	DEPTH OF SUBMERSIBLE	8	167
321	6	SAR	92	UNDERWATER SEARCH	LOCATE	025	GEOGRAPHICAL POSITION OF SUBMERSIBLE	8	167
322	6	SAR	92	UNDERWATER SEARCH	IDENTIFY	026	NAME OR NUMBER OF SUBMERSIBLE	2	42
323	6	SAR	92	UNDERWATER SEARCH	IDENTIFY	029	TYPE OF SUBMERSIBLE	4	83
324	6	SAR	92	UNDERWATER SEARCH	OBSERVE	037	MOVEMENT OF SUBMERSIBLE	2	42
325	6	SAR	92	UNDERWATER SEARCH	OBSERVE	067	NATURE OF DISTRESS: DISABLED	2	42
326	6	SAR	92	UNDERWATER SEARCH	OBSERVE	071	NATURE OF DISTRESS: SUNK	2	42

APPENDIX F

SURVEILLANCE REQUIREMENTS MODEL INPUTS

KEY TO COLUMN HEADINGS

NO.	Unique identification number.
EVNT	Event number (See Tables 5-3 and 5-4).
SN	Scene (See Table 5-4).
RANK	Relative importance of the event to the Coast Guard (See Tables 5-3 and 5-4).
WT.A	Weight of the event normalized to 1000 (See Tables 5-3 and 5-4).
PROG	Coast Guard Operating Program abbreviation (See Table 3-1).
WT.	Program weight normalized to 1000 (See Table 6-3).
PA	Program Activity code (See Table 3-3).
PA SCR	Program Activity score. Estimated impact of the event on the Program Activity: Major (8) Moderate (4) Minor (2)
PA WT	Relative importance of the Program Activity to its Operating Program.
Surveillance Information Element Codes	(See Table 3-2) (This portion of the table is a binary matrix: A 1 in any SIE column implies that the event affects the SIE; a blank implies no impact.)

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	001	002	003	004	005	006	SUR 007	VEI 008	LLA 009	NCE 010	IN 011	FOR 012	MAT 013	ION 014	EL 015	ENE 016	NT 017	COD 018	ES 019	020	021	022	023	024	025
092	0018	1	8	24	PSS	107	79	8	1		1	1																			1		1
093	0016	1	8	24	PSS	107	80	8	1	1		1	1	1			1	1													1	1	
006	0002	1	12	22	AN	88	1	2	1				1	1																			1
007	0002	1	12	22	AN	88	3	2	1																		1						
008	0002	1	12	22	CVS	117	14	8	1																						1	1	
009	0002	1	12	22	MEP	59	40	4	1							1						1	1						1				1
010	0002	1	12	22	PSS	107	80	2	1	1		1	1	1			1	1													1	1	
094	0019	1	13	22	CVS	117	13	2	1																						1	1	
095	0019	1	13	22	ELT	113	22	8	1		1	1	1																		1		1
096	0019	1	13	22	MEP	59	40	4	1							1						1	1						1				1
097	0019	1	13	22	PSS	107	77	4	1		1	1	1	1			1														1	1	
098	0019	1	13	22	PSS	107	80	4	1	1		1	1	1			1	1													1	1	
203	0035	1	13	22	AN	88	1	2	1				1	1																			1
204	0035	1	13	22	AN	88	3	2	1																		1						
205	0035	1	13	22	AN	88	5	2	1																			1					
206	0035	1	13	22	ELT	113	21	2	1		1	1	1	1																			1
207	0035	1	13	22	MEP	59	40	2	1							1						1	1						1				1
060	0012	1	17	21	AN	88	3	2	1																		1						
061	0012	1	17	21	AN	88	4	2	1															1									
062	0012	1	17	21	AN	88	5	2	1																			1					
063	0012	1	17	21	MEP	59	40	8	1							1						1	1						1				1
064	0012	1	17	21	PSS	107	77	2	1		1	1	1	1			1														1	1	
065	0012	1	17	21	PSS	107	78	4	1		1	1	1																		1		1
066	0012	1	17	21	PSS	107	79	4	1		1	1																			1		1
099	0020	1	17	21	AN	88	1	4	1				1	1																			1
100	0020	1	17	21	AN	88	3	4	1																		1						
101	0020	1	17	21	MEP	59	40	2	1							1						1	1						1				1
102	0020	1	17	21	PSS	107	79	2	1		1	1																			1	1	
042	0009	1	22	18	MEP	59	41	8	1							1						1	1						1				1
043	0009	1	22	18	PSS	107	77	2	1		1	1	1	1			1														1	1	
044	0009	1	22	18	PSS	107	78	4	1		1	1	1																		1		1
045	0009	1	22	18	PSS	107	79	4	1		1	1																			1		1
051	0011	1	22	18	AN	88	1	2	1				1	1																			1
052	0011	1	22	18	AN	88	3	2	1																		1						
053	0011	1	22	18	AN	88	4	2	1															1									
054	0011	1	22	18	AN	88	5	2	1																			1					
055	0011	1	22	18	MEP	59	40	8	1							1						1	1						1				1
056	0011	1	22	18	PSS	107	77	2	1		1	1	1	1			1														1	1	
057	0011	1	22	18	PSS	107	78	4	1		1	1	1																		1		1
058	0011	1	22	18	PSS	107	79	4	1		1	1																			1		1
059	0011	1	22	18	SAR	123	91	2	1		1	1	1	1																	1	1	
077	0015	1	22	18	AN	88	3	2	1																		1						
078	0015	1	22	18	AN	88	5	2	1																			1					
079	0015	1	22	18	CVS	117	13	4	1																						1	1	
080	0015	1	22	18	CVS	117	14	4	1																						1	1	
081	0015	1	22	18	CVS	117	15	4	1													1								1			1
082	0015	1	22	18	MEP	59	40	4	1							1						1	1						1				1
083	0015	1	22	18	MEP	59	42	2	1							1						1	1						1				1
084	0015	1	22	18	PSS	107	77	2	1		1	1	1	1			1														1	1	
085	0015	1	22	18	PSS	107	80	2	1	1		1	1	1			1	1													1	1	
103	0021	1	28	18	SAR	123	92	8	1									1											1		1	1	1
151	0027	1	30	17	AN	88	1	4	1				1	1																			1
152	0027	1	30	17	AN	88	2	2	1				1																				
153	0027	1	30	17	AN	88	3	4	1																		1						
154	0027	1	30	17	AN	88	5	2	1																			1					
155	0027	1	30	17	BA	16	10	2	1		1	1																			1		
156	0027	1	30	17	TO	110	30	8	1						1																		1
157	0027	1	30	17	MEP	59	40	2	1							1						1	1						1				1
158	0027	1	30	17	MEP	59	41	2	1							1						1	1						1				1
159	0027	1	30	17	MSA	29	61	8	1																	1							1
160	0027	1	30	17	PSS	107	77	4	1		1	1	1	1			1														1	1	

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	026	027	028	029	030	031	SUR 032	VEI 033	LLA 034	NCE 035	IN 036	FOR 037	MAT 038	ION 039	ELI 040	EME 041	NT 042	COD 043	ES 044	045	046	047	048	049	050
092	0018	1	8	24	PSS	107	79	8	1	1			1								1		1								1			
093	0018	1	8	24	PSS	107	80	8	1	1	1		1								1					1				1				
006	0002	1	12	22	AN	88	1	2	1	1				1	1																			
007	0002	1	12	22	AN	88	3	1	1					1			1		1	1		1												
008	0002	1	12	22	CVS	117	14	8	1									1																
009	0002	1	12	22	MEP	59	40	4	1				1								1								1					
010	0002	1	12	22	PSS	107	80	2	1	1	1		1								1					1				1				
094	0019	1	13	22	CVS	117	13	2	1									1																
095	0019	1	13	22	ELT	113	22	8	1	1	1		1								1					1	1	1						
096	0019	1	13	22	MEP	59	40	4	1				1								1								1					
097	0019	1	13	22	PSS	107	77	4	1	1	1		1								1					1				1	1			
098	0019	1	13	22	PSS	107	80	4	1	1	1		1								1					1				1				
203	0035	1	13	22	AN	88	1	2	1	1				1	1																			
204	0035	1	13	22	AN	88	3	2	1					1			1		1	1		1												
205	0035	1	13	22	AN	88	5	2	1								1		1			1												
206	0035	1	13	22	ELT	113	21	2	1	1	1		1								1		1	1							1			
207	0035	1	13	22	MEP	59	40	2	1				1								1								1					
060	0012	1	17	21	AN	88	3	2	1					1			1		1	1		1												
061	0012	1	17	21	AN	88	4	2	1							1	1					1												
062	0012	1	17	21	AN	88	5	2	1								1		1			1												
063	0012	1	17	21	MEP	59	40	8	1				1								1								1					
064	0012	1	17	21	PSS	107	77	2	1	1	1		1								1					1				1	1			
065	0012	1	17	21	PSS	107	78	4	1	1	1										1										1			
066	0012	1	17	21	PSS	107	79	4	1	1			1								1		1								1			
099	0020	1	17	21	AN	88	1	4	1	1				1	1																			
100	0020	1	17	21	AN	88	3	4	1					1			1		1	1		1												
101	0020	1	17	21	MEP	59	40	2	1				1								1								1					
102	0020	1	17	21	PSS	107	79	2	1	1			1								1		1								1			
042	0009	1	22	18	MEP	59	41	8	1	1											1								1					
043	0009	1	22	18	PSS	107	77	2	1	1	1		1								1					1				1	1			
044	0009	1	22	18	PSS	107	78	4	1	1	1										1										1			
045	0009	1	22	18	PSS	107	79	4	1	1			1								1		1								1			
051	0011	1	22	18	AN	88	1	2	1	1				1	1																			
052	0011	1	22	18	AN	88	3	2	1					1			1		1	1		1												
053	0011	1	22	18	AN	88	4	2	1							1	1					1												
054	0011	1	22	18	AN	88	5	2	1								1		1			1												
055	0011	1	22	18	MEP	59	40	8	1				1								1								1					
056	0011	1	22	18	PSS	107	77	2	1	1	1		1								1					1				1	1			
057	0011	1	22	18	PSS	107	78	4	1	1	1										1										1			
058	0011	1	22	18	PSS	107	79	4	1	1			1								1		1								1			
059	0011	1	22	18	SAR	123	91	2	1	1			1	1	1						1													
077	0015	1	22	18	AN	88	3	2	1					1			1		1	1		1												
078	0015	1	22	18	AN	88	5	2	1								1		1			1												
079	0015	1	22	18	CVS	117	13	4	1									1																
080	0015	1	22	18	CVS	117	14	4	1									1																
081	0015	1	22	18	CVS	117	15	4	1									1																
082	0015	1	22	18	MEP	59	40	4	1				1								1								1					
083	0015	1	22	18	MEP	59	42	2	1				1								1								1					
084	0015	1	22	18	PSS	107	77	2	1	1	1		1								1					1				1	1			
085	0015	1	22	18	PSS	107	80	2	1	1	1		1								1					1				1				
103	0021	1	28	18	SAR	123	92	8	1	1			1								1													
151	0027	1	30	17	AN	88	1	4	1	1				1	1																			
152	0027	1	30	17	AN	88	2	2	1	1				1	1																			
153	0027	1	30	17	AN	88	3	4	1					1			1		1	1		1												
154	0027	1	30	17	AN	88	5	2	1								1		1			1												
155	0027	1	30	17	BA	16	10	2	1														1											
156	0027	1	30	17	TO	110	30	8	1				1								1													
157	0027	1	30	17	MEP	59	40	2	1				1								1								1					
158	0027	1	30	17	MEP	59	41	2	1				1								1								1					
159	0027	1	30	17	MSA	29	61	8	1																									
160	0027	1	30	17	PSS	107	77	4	1	1	1		1								1					1				1	1			

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VET 056	LIA 057	NCE 058	IN 059	FOR 060	MAT 061	TON 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
092	0018	1	8	24	PSS	107	79	8	1						1															
093	0018	1	8	24	PSS	107	80	8	1			1																		
006	0002	1	12	22	AN	88	1	2	1																					
007	0002	1	12	22	AN	88	3	2	1																					
008	0002	1	12	22	CVS	117	14	8	1																					
009	0002	1	12	22	MEP	59	40	4	1							1			1	1										
010	0002	1	12	22	PSS	107	80	2	1			1																		
094	0019	1	13	22	CVS	117	13	2	1																					
095	0019	1	13	22	ELT	113	22	8	1		1	1	1																	
096	0019	1	13	22	MEP	59	40	4	1							1			1	1										
097	0019	1	13	22	PSS	107	77	4	1																					
098	0019	1	13	22	PSS	107	80	4	1			1																		
203	0035	1	13	22	AN	88	1	2	1																					
204	0035	1	13	22	AN	88	3	2	1																					
205	0035	1	13	22	AN	88	5	2	1																					
206	0035	1	13	22	ELT	113	21	2	1																					
207	0035	1	13	22	MEP	59	40	2	1							1			1	1										
060	0012	1	17	21	AN	88	3	2	1																					
061	0012	1	17	21	AN	88	4	2	1																					
062	0012	1	17	21	AN	88	5	2	1																					
063	0012	1	17	21	MEP	59	40	8	1							1			1	1										
064	0012	1	17	21	PSS	107	77	2	1																					
065	0012	1	17	21	PSS	107	78	4	1																					
066	0012	1	17	21	PSS	107	79	4	1						1															
099	0020	1	17	21	AN	88	1	4	1																					
100	0020	1	17	21	AN	88	3	4	1																					
101	0020	1	17	21	MEP	59	40	2	1							1			1	1										
102	0020	1	17	21	PSS	107	79	2	1						1															
042	0009	1	22	18	MEP	59	41	8	1							1			1	1										
043	0009	1	22	18	PSS	107	77	2	1																					
044	0009	1	22	18	PSS	107	78	4	1																					
045	0009	1	22	18	PSS	107	79	4	1						1															
051	0011	1	22	18	AN	88	1	2	1																					
052	0011	1	22	18	AN	88	3	2	1																					
053	0011	1	22	18	AN	88	4	2	1																					
054	0011	1	22	18	AN	88	5	2	1																					
055	0011	1	22	18	MEP	59	40	8	1							1			1	1										
056	0011	1	22	18	PSS	107	77	2	1																					
057	0011	1	22	18	PSS	107	78	4	1																					
058	0011	1	22	18	PSS	107	79	4	1						1															
059	0011	1	22	18	SAR	123	91	2	1						1											1	1	1	1	
077	0015	1	22	18	AN	88	3	2	1																					
078	0015	1	22	18	AN	88	5	2	1																					
079	0015	1	22	18	CVS	117	13	4	1																					
080	0015	1	22	18	CVS	117	14	4	1																					
081	0015	1	22	18	CVS	117	15	4	1																					
082	0015	1	22	18	MEP	59	40	4	1							1			1	1										
083	0015	1	22	18	MEP	59	42	2	1							1			1	1										
084	0015	1	22	18	PSS	107	77	2	1																					
085	0015	1	22	18	PSS	107	80	2	1			1																		
103	0021	1	28	18	SAR	123	92	8	1																	1				1
151	0027	1	30	17	AN	88	1	4	1																					
152	0027	1	30	17	AN	88	2	2	1																					
153	0027	1	30	17	AN	88	3	4	1																					
154	0027	1	30	17	AN	88	5	2	1																					
155	0027	1	30	17	BA	16	10	2	1																					
156	0027	1	30	17	TO	110	30	8	1					1		1														
157	0027	1	30	17	MEP	59	40	2	1							1			1	1										
158	0027	1	30	17	MEP	59	41	2	1							1			1	1										
159	0027	1	30	17	MSA	29	61	8	1																					
160	0027	1	30	17	PSS	107	77	4	1																					

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	C01	C02	C03	C04	C05	C06	SUR C07	VEI C08	LLA C09	NCE C10	IN C11	FOR C12	MAT C13	ION C14	EL C15	EME C16	NT C17	COD C18	ES C19	C20	C21	C22	C23	C24	C25
161	0027	1	30	17	PSS	107	79	2	1		1	1																			1		1
162	0027	1	30	17	SAR	123	90	2	1															1			1	1	1		1	1		1
163	0027	1	30	17	SAR	123	91	2	1		1	1	1	1																	1	1		1
208	0036	1	31	16	MEP	59	40	8	1							1						1	1							1				1
209	0036	1	31	16	MEP	59	41	8	1							1						1	1							1				1
210	0036	1	31	16	PSS	107	77	4	1		1	1	1	1			1															1	1	
211	0036	1	31	16	PSS	107	78	8	1		1	1	1																			1		1
212	0036	1	31	16	PSS	107	79	2	1		1	1																				1		1
123	0024	1	42	14	MEP	59	40	4	1							1						1	1							1				1
124	0024	1	42	14	MEP	59	41	4	1							1						1	1							1				1
125	0024	1	42	14	PSS	107	76	2	1		1	1																			1				1
126	0024	1	42	14	PSS	107	77	2	1		1	1	1	1			1															1	1	
127	0024	1	42	14	PSS	107	79	2	1		1	1																				1		1
128	0024	1	42	14	SAR	123	90	2	1															1			1	1	1		1	1		1
129	0024	1	42	14	SAR	123	91	2	1		1	1	1	1																	1	1		1
191	0032	1	42	14	ELT	113	22	4	1		1	1	1																			1		1
192	0032	1	42	14	PSS	107	76	8	1		1	1																			1				1
067	0013	1	45	14	CVS	117	15	8	1													1									1			1
068	0013	1	45	14	MEP	59	40	8	1							1						1	1							1				1
267	0044	1	48	12	ELT	113	2	2	1				1																					
268	0044	1	48	12	PSS	107	77	2	1		1	1	1	1			1															1	1	
269	0044	1	48	12	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
270	0044	1	48	12	SAR	123	92	8	1									1											1			1	1	1
302	0051	1	51	11	CVS	117	14	8	1																							1	1	
303	0051	1	51	11	CVS	117	15	8	1													1									1			1
355	0058	1	53	10	AN	88	3	2	1																		1							
356	0058	1	53	10	CVS	117	13	4	1																							1	1	
357	0058	1	53	10	CVS	117	14	4	1																							1	1	
358	0058	1	53	10	CVS	117	15	4	1													1									1			1
359	0058	1	53	10	MEP	59	40	2	1							1						1	1							1				1
360	0058	1	53	10	MEP	59	42	2	1							1						1	1							1				1
361	0058	1	53	10	PSS	107	75	2	1																									
362	0058	1	53	10	PSS	107	77	2	1		1	1	1	1			1															1	1	
363	0058	1	53	10	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
011	0003	1	59	-9	SAR	123	90	8	1															1			1	1	1		1	1		1
027	0005	1	60	-12	ELT	113	20	8	1		1	1																						1
028	0005	1	60	-12	SAR	123	90	4	1															1			1	1	1		1	1		1
046	0010	2	1	31	MEP	59	40	2	1							1						1	1					1		1				1
047	0010	2	1	31	MEP	59	42	2	1							1						1	1					1		1				1
048	0010	2	1	31	PSS	107	77	4	1		1	1	1	1			1															1	1	
049	0010	2	1	31	PSS	107	78	4	1		1	1	1																			1		1
050	0010	2	1	31	SAR	123	91	2	1		1	1	1	1																		1	1	
130	0025	2	1	31	AN	88	1	4	1				1	1																				1
131	0025	2	1	31	AN	88	2	4	1				1																					
132	0025	2	1	31	AN	88	3	4	1																		1							
133	0025	2	1	31	AN	88	4	4	1															1										
134	0025	2	1	31	MOMP	191	51	8	1		1	1	1																			1		
135	0025	2	1	31	MOMP	191	53	8	1				1																			1	1	1
136	0025	2	1	31	PSS	107	75	2	1																									
137	0025	2	1	31	PSS	107	76	4	1		1	1																			1				1
138	0025	2	1	31	PSS	107	77	4	1		1	1	1	1			1															1	1	
139	0025	2	1	31	PSS	107	78	4	1		1	1	1																			1		1
140	0025	2	1	31	PSS	107	79	4	1		1	1																				1		1
141	0025	2	1	31	PSS	107	80	4	1	1		1	1	1			1	1														1	1	
142	0025	2	1	31	SAR	123	90	4	1															1			1	1	1		1	1		1
143	0025	2	1	31	SAR	123	91	4	1		1	1	1	1																		1	1	
180	0030	2	5	29	MEP	59	40	2	1							1						1	1					1		1				1
181	0030	2	5	29	PSS	107	75	2	1																									
182	0030	2	5	29	PSS	107	77	4	1		1	1	1	1			1															1	1	
183	0030	2	5	29	PSS	107	78	4	1		1	1	1																			1		1
184	0030	2	5	29	SAR	123	92	2	1									1											1			1	1	1

THIS PAGE IS BEST QUALITY PRACTICABLE
FROM COPY FURNISHED TO DDC

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	026	027	028	C29	030	031	SUR 032	VEI 033	LLA 034	NCE 035	IN 036	FOR 037	MAT 038	ION 039	EL 040	EME 041	NT 042	COD 043	ES 044	045	046	047	048	049	050
161	0027	1	30	17	PSS	107	79	2	1	1			1								1		1							1				
162	0027	1	30	17	SAR	123	90	2	1	1			1			1	1				1													
163	0027	1	30	17	SAR	123	91	2	1	1			1	1	1						1													
208	0036	1	31	16	MEP	59	40	8	1				1								1								1					
209	0036	1	31	16	MEP	59	41	8	1				1								1								1					
210	0036	1	31	16	PSS	107	77	4	1	1	1		1								1					1				1	1			
211	0036	1	31	16	PSS	107	78	8	1	1	1										1										1			
212	0036	1	31	16	PSS	107	79	2	1	1			1								1		1								1			
123	0024	1	42	14	MEP	59	40	4	1				1								1								1					
124	0024	1	42	14	MEP	59	41	4	1				1								1								1					
125	0024	1	42	14	PSS	107	76	2	1	1	1		1								1					1	1			1				
126	0024	1	42	14	PSS	107	77	2	1	1	1		1								1					1				1	1			
127	0024	1	42	14	PSS	107	79	2	1	1			1								1		1								1			
128	0024	1	42	14	SAR	123	90	2	1	1			1			1	1				1													
129	0024	1	42	14	SAR	123	91	2	1	1			1	1	1						1													
191	0032	1	42	14	ELT	113	22	4	1	1	1		1								1					1	1	1						
192	0032	1	42	14	PSS	107	76	8	1	1	1		1								1					1	1			1				
067	0013	1	45	14	CVS	117	15	8	1									1																
068	0013	1	45	14	MEP	59	40	8	1				1								1								1					
267	0044	1	48	12	ELT	113	2	2	1	1				1	1				1	1														
268	0044	1	48	12	PSS	107	77	2	1	1	1		1								1					1				1	1			
269	0044	1	48	12	PSS	107	80	2	1	1	1		1								1					1				1				
270	0044	1	48	12	SAR	123	92	8	1	1			1								1													
302	0051	1	51	11	CVS	117	14	8	1									1																
303	0051	1	51	11	CVS	117	15	8	1									1																
355	0058	1	53	10	AN	88	3	2	1					1			1		1	1		1												
356	0058	1	53	10	CVS	117	13	4	1									1																
357	0058	1	53	10	CVS	117	14	4	1									1																
358	0058	1	53	10	CVS	117	15	4	1									1																
359	0058	1	53	10	MEP	59	40	2	1				1								1								1					
360	0058	1	53	10	MEP	59	42	2	1				1								1								1					
361	0058	1	53	10	PSS	107	75	2	1									1													1			
362	0058	1	53	10	PSS	107	77	2	1	1	1		1								1					1				1	1			
363	0058	1	53	10	PSS	107	80	2	1	1	1		1								1					1				1				
011	0003	1	59	-9	SAR	123	90	8	1	1			1			1	1				1													
027	0005	1	60	-12	ELT	113	20	8	1	1	1		1								1			1	1			1				1	1	1
028	0005	1	60	-12	SAR	123	90	4	1	1			1			1	1				1													
046	0010	2	1	31	MEP	59	40	2	1				1								1								1					
047	0010	2	1	31	MEP	59	42	2	1				1								1								1					
048	0010	2	1	31	PSS	107	77	4	1	1	1		1								1					1				1	1			
049	0010	2	1	31	PSS	107	78	4	1	1	1										1										1			
050	0010	2	1	31	SAR	123	91	2	1	1			1	1	1						1													
130	0025	2	1	31	AN	88	1	4	1	1				1	1																			
131	0025	2	1	31	AN	88	2	4	1	1				1	1				1	1														
132	0025	2	1	31	AN	88	3	4	1					1			1		1	1		1												
133	0025	2	1	31	AN	88	4	4	1							1	1					1												
134	0025	2	1	31	MOMP	191	51	8	1			1	1								1									1				
135	0025	2	1	31	MOMP	191	53	8	1				1						1		1									1				
136	0025	2	1	31	PSS	107	75	2	1									1													1			
137	0025	2	1	31	PSS	107	76	4	1	1	1		1								1					1	1			1				
138	0025	2	1	31	PSS	107	77	4	1	1	1		1								1					1				1	1			
139	0025	2	1	31	PSS	107	78	4	1	1	1										1										1			
140	0025	2	1	31	PSS	107	79	4	1	1			1								1		1								1			
141	0025	2	1	31	PSS	107	80	4	1	1	1		1								1					1				1				
142	0025	2	1	31	SAR	123	90	4	1	1			1			1	1				1													
143	0025	2	1	31	SAR	123	91	4	1	1			1	1	1						1													
180	0030	2	5	29	MEP	59	40	2	1				1								1								1					
181	0030	2	5	29	PSS	107	75	2	1									1													1			
182	0030	2	5	29	PSS	107	77	4	1	1	1		1								1					1				1	1			
183	0030	2	5	29	PSS	107	78	4	1	1	1										1										1			
184	0030	2	5	29	SAR	123	92	2	1	1			1								1													

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VET 056	LIA 057	NCE 058	IN 059	FOR 060	MAT 061	TON 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
161	0027	1	30	17	PSS	107	79	2	1						1															
162	0027	1	30	17	SAR	123	90	2	1																					
163	0027	1	30	17	SAR	123	91	2	1						1											1	1	1	1	
208	0036	1	31	16	MEP	59	40	8	1							1			1	1										
209	0036	1	31	16	MEP	59	41	8	1							1			1	1										
210	0036	1	31	16	PSS	107	77	4	1																					
211	0036	1	31	16	PSS	107	78	8	1																					
212	0036	1	31	16	PSS	107	79	2	1						1															
123	0024	1	42	14	MEP	59	40	4	1							1			1	1										
124	0024	1	42	14	MEP	59	41	4	1							1			1	1										
125	0024	1	42	14	PSS	107	76	2	1	1		1	1																	
126	0024	1	42	14	PSS	107	77	2	1																					
127	0024	1	42	14	PSS	107	79	2	1						1															
128	0024	1	42	14	SAR	123	90	2	1																					
129	0024	1	42	14	SAR	123	91	2	1						1											1	1	1	1	
191	0032	1	42	14	ELT	113	22	4	1		1	1	1																	
192	0032	1	42	14	PSS	107	76	8	1	1		1	1																	
067	0013	1	45	14	CVS	117	15	8	1																					
068	0013	1	45	14	MEP	59	40	8	1							1			1	1										
267	0044	1	48	12	ELT	113	2	2	1																					
268	0044	1	48	12	PSS	107	77	2	1																					
269	0044	1	48	12	PSS	107	80	2	1			1																		
270	0044	1	48	12	SAR	123	92	8	1																	1				1
302	0051	1	51	11	CVS	117	14	8	1																					
303	0051	1	51	11	CVS	117	15	8	1																					
355	0058	1	53	10	AN	88	3	2	1																					
356	0058	1	53	10	CVS	117	13	4	1																					
357	0058	1	53	10	CVS	117	14	4	1																					
358	0058	1	53	10	CVS	117	15	4	1																					
359	0058	1	53	10	MEP	59	40	2	1							1			1	1										
360	0058	1	53	10	MEP	59	42	2	1							1			1	1										
361	0058	1	53	10	PSS	107	75	2	1																					
362	0058	1	53	10	PSS	107	77	2	1																					
363	0058	1	53	10	PSS	107	80	2	1			1																		
011	0003	1	59	-9	SAR	123	90	8	1																					
027	0005	1	60	-12	ELT	113	20	8	1																					
028	0005	1	60	-12	SAR	123	90	4	1																					
046	0010	2	1	31	MEP	59	40	2	1							1			1	1										
047	0010	2	1	31	MEP	59	42	2	1							1			1	1										
048	0010	2	1	31	PSS	107	77	4	1																					
049	0010	2	1	31	PSS	107	78	4	1																					
050	0010	2	1	31	SAR	123	91	2	1						1											1	1	1	1	
130	0025	2	1	31	AN	88	1	4	1																					
131	0025	2	1	31	AN	88	2	4	1																					
132	0025	2	1	31	AN	88	3	4	1																					
133	0025	2	1	31	AN	88	4	4	1																					
134	0025	2	1	31	MOMP	191	51	8	1																					
135	0025	2	1	31	MOMP	191	53	8	1																					
136	0025	2	1	31	PSS	107	75	2	1																					
137	0025	2	1	31	PSS	107	76	4	1	1		1	1																	
138	0025	2	1	31	PSS	107	77	4	1																					
139	0025	2	1	31	PSS	107	78	4	1																					
140	0025	2	1	31	PSS	107	79	4	1						1															
141	0025	2	1	31	PSS	107	80	4	1			1																		
142	0025	2	1	31	SAR	123	90	4	1																					
143	0025	2	1	31	SAR	123	91	4	1						1											1	1	1	1	
180	0030	2	5	29	MEP	59	40	2	1							1			1	1										
181	0030	2	5	29	PSS	107	75	2	1																					
182	0030	2	5	29	PSS	107	77	4	1																					
183	0030	2	5	29	PSS	107	78	4	1																					
184	0030	2	5	29	SAR	123	92	2	1																	1				1

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	001	002	003	004	005	006	SUR 007	VEI 008	LLA 009	NCE 010	IN 011	POR 012	MAT 013	ION 014	EL 015	EME 016	NT 017	COD 018	ES 019	020	021	022	023	024	025
251	0043	2	5	29	AN	88	1	4	1				1	1																				1
252	0043	2	5	29	AN	88	2	4	1				1																					
253	0043	2	5	29	AN	88	3	4	1																		1							
254	0043	2	5	29	AN	88	4	4	1															1										
255	0043	2	5	29	AN	88	5	4	1																			1						
256	0043	2	5	29	MOMP	191	50	8	1	1	1	1																				1		
257	0043	2	5	29	MOMP	191	51	8	1		1	1	1																			1		
258	0043	2	5	29	MOMP	191	52	8	1										1													1	1	
259	0043	2	5	29	MOMP	191	53	8	1				1																			1	1	1
260	0043	2	5	29	PSS	107	75	2	1																									
261	0043	2	5	29	PSS	107	76	4	1		1	1																		1				1
262	0043	2	5	29	PSS	107	77	4	1		1	1	1	1				1														1	1	
263	0043	2	5	29	PSS	107	78	4	1		1	1	1																			1		1
264	0043	2	5	29	PSS	107	80	4	1	1		1	1	1				1	1													1	1	
265	0043	2	5	29	SAR	123	90	4	1															1			1	1	1		1	1		1
266	0043	2	5	29	SAR	123	91	4	1		1	1	1	1																	1	1		1
323	0054	2	9	24	AN	88	1	2	1				1	1																				1
324	0054	2	9	24	AN	88	3	2	1																		1							
325	0054	2	9	24	CVS	117	13	4	1																							1	1	
326	0054	2	9	24	CVS	117	14	4	1																							1	1	
327	0054	2	9	24	CVS	117	15	4	1													1									1			1
328	0054	2	9	24	MEP	59	40	4	1							1						1	1						1					1
329	0054	2	9	24	MEP	59	42	2	1							1						1	1						1					1
330	0054	2	9	24	PSS	107	77	2	1		1	1	1	1			1															1	1	
331	0054	2	9	24	PSS	107	79	2	1		1	1																				1		1
332	0054	2	9	24	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
144	0026	2	10	23	MEP	59	40	4	1							1						1	1						1					1
145	0026	2	10	23	MEP	59	41	4	1							1						1	1						1					1
146	0026	2	10	23	PSS	107	76	2	1		1	1																	1					1
147	0026	2	10	23	PSS	107	77	2	1		1	1	1	1				1														1	1	
148	0026	2	10	23	PSS	107	79	2	1		1	1																				1		1
149	0026	2	10	23	SAR	123	90	2	1															1			1	1	1		1	1		1
150	0026	2	10	23	SAR	123	91	2	1		1	1	1	1																	1	1		1
231	0039	2	13	22	AN	88	1	2	1				1	1																				1
232	0039	2	13	22	AN	88	3	2	1																		1							
233	0039	2	13	22	CVS	117	13	4	1																							1	1	
234	0039	2	13	22	CVS	117	14	4	1																							1	1	
235	0039	2	13	22	CVS	117	15	4	1													1									1			1
236	0039	2	13	22	MEP	59	40	4	1							1						1	1						1					1
237	0039	2	13	22	MEP	59	42	2	1							1						1	1						1					1
238	0039	2	13	22	PSS	107	77	2	1		1	1	1	1				1														1	1	
239	0039	2	13	22	PSS	107	80	2	1	1		1	1	1				1	1													1	1	
284	0048	2	19	20	TO	110	30	8	1						1																			1
285	0048	2	19	20	MSA	29	61	4	1							1																		1
286	0048	2	19	20	MSA	29	62	2	1											1													1	1
287	0048	2	19	20	MSA	29	63	2	1												1													1
288	0048	2	19	20	MSA	29	64	2	1																									1
289	0048	2	19	20	MSA	29	65	4	1							1																		1
290	0048	2	19	20	MSA	29	66	4	1												1													1
291	0048	2	19	20	MSA	29	68	2	1																									1
292	0048	2	19	20	SAR	123	90	4	1															1			1	1	1		1	1		1
293	0048	2	19	20	SAR	123	91	4	1		1	1	1	1																	1	1		1
294	0048	2	19	20	SAR	123	92	4	1										1											1		1	1	1
368	0060	2	19	20	AN	88	3	2	1																		1							
369	0060	2	19	20	AN	88	4	2	1															1										
370	0060	2	19	20	AN	88	5	2	1																			1						
371	0060	2	19	20	MEP	59	40	4	1							1						1	1						1					1
372	0060	2	19	20	PSS	107	75	2	1																									
373	0060	2	19	20	PSS	107	77	4	1		1	1	1	1				1														1	1	
069	0014	2	21	19	AN	88	1	2	1				1	1																				1
070	0014	2	21	19	AN	88	3	2	1																		1							

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	026	027	028	029	030	031	SUR 032	VEI 033	LLA 034	NCE 035	IN 036	FOR 037	MAT 038	ION 039	EL 040	EME 041	NT 042	COD 043	ES 044	045	046	047	048	049	050
251	0043	2	5	29	AN	88	1	4	1	1				1	1																			
252	0043	2	5	29	AN	88	2	4	1	1				1	1				1	1														
253	0043	2	5	29	AN	88	3	4	1					1			1		1	1		1												
254	0043	2	5	29	AN	88	4	4	1							1	1					1												
255	0043	2	5	29	AN	88	5	4	1								1		1			1												
256	0043	2	5	29	MOMP	191	50	8	1			1	1								1									1				
257	0043	2	5	29	MOMP	191	51	8	1			1	1								1									1				
258	0043	2	5	29	MOMP	191	52	8	1			1	1								1									1				
259	0043	2	5	29	MOMP	191	53	8	1				1						1		1									1				
260	0043	2	5	29	PSS	107	75	2	1									1													1			
261	0043	2	5	29	PSS	107	76	4	1	1	1		1								1					1	1			1				
262	0043	2	5	29	PSS	107	77	4	1	1	1		1								1					1				1	1			
263	0043	2	5	29	PSS	107	78	4	1	1	1										1										1			
264	0043	2	5	29	PSS	107	80	4	1	1	1		1								1					1				1				
265	0043	2	5	29	SAR	123	90	4	1	1			1			1	1				1													
266	0043	2	5	29	SAR	123	91	4	1	1			1	1	1						1													
323	0054	2	9	24	AN	88	1	2	1	1				1	1																			
324	0054	2	9	24	AN	88	3	2	1					1			1		1	1		1												
325	0054	2	9	24	CVS	117	13	4	1									1																
326	0054	2	9	24	CVS	117	14	4	1									1																
327	0054	2	9	24	CVS	117	15	4	1									1																
328	0054	2	9	24	MEP	59	40	4	1				1								1								1					
329	0054	2	9	24	MEP	59	42	2	1				1								1								1					
330	0054	2	9	24	PSS	107	77	2	1	1	1		1								1					1				1	1			
331	0054	2	9	24	PSS	107	79	2	1	1			1								1		1								1			
332	0054	2	9	24	PSS	107	80	2	1	1	1		1								1					1				1				
144	0026	2	10	23	MEP	59	40	4	1				1								1								1					
145	0026	2	10	23	MEP	59	41	4	1				1								1								1					
146	0026	2	10	23	PSS	107	76	2	1	1	1		1								1					1	1			1				
147	0026	2	10	23	PSS	107	77	2	1	1	1		1								1					1				1	1			
148	0026	2	10	23	PSS	107	79	2	1	1			1								1		1								1			
149	0026	2	10	23	SAR	123	90	2	1	1			1			1	1				1													
150	0026	2	10	23	SAR	123	91	2	1	1			1	1	1						1													
231	0039	2	13	22	AN	88	1	2	1	1				1	1																			
232	0039	2	13	22	AN	88	3	2	1					1			1		1	1		1												
233	0039	2	13	22	CVS	117	13	4	1									1																
234	0039	2	13	22	CVS	117	14	4	1									1																
235	0039	2	13	22	CVS	117	15	4	1									1																
236	0039	2	13	22	MEP	59	40	4	1				1								1								1					
237	0039	2	13	22	MEP	59	42	2	1				1								1								1					
238	0039	2	13	22	PSS	107	77	2	1	1	1		1								1					1				1	1			
239	0039	2	13	22	PSS	107	80	2	1	1	1		1								1					1				1				
284	0048	2	19	20	TO	110	30	8	1				1								1													
285	0048	2	19	20	MSA	29	61	4	1																									
286	0048	2	19	20	MSA	29	62	2	1																									
287	0048	2	19	20	MSA	29	63	2	1												1													
288	0048	2	19	20	MSA	29	64	2	1																									
289	0048	2	19	20	MSA	29	65	4	1														1											
290	0048	2	19	20	MSA	29	66	4	1												1													
291	0048	2	19	20	MSA	29	68	2	1												1													
292	0048	2	19	20	SAR	123	90	4	1	1			1			1	1				1													
293	0048	2	19	20	SAR	123	91	4	1	1			1	1	1						1													
294	0048	2	19	20	SAR	123	92	4	1	1			1								1													
368	0060	2	19	20	AN	88	3	2	1					1			1		1	1		1												
369	0060	2	19	20	AN	88	4	2	1							1	1					1												
370	0060	2	19	20	AN	88	5	2	1								1		1			1												
371	0060	2	19	20	MEP	59	40	4	1				1								1								1					
372	0060	2	19	20	PSS	107	75	2	1									1													1			
373	0060	2	19	20	PSS	107	77	4	1	1	1		1								1					1				1	1			
069	0014	2	21	19	AN	88	1	2	1	1				1	1																			
070	0014	2	21	19	AN	88	3	2	1					1			1		1	1		1												

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VEI 056	LLA 057	NCE 058	IN 059	FOR 060	MAT 061	ION 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
251	0043	2	5	29	AN	88	1	4	1																					
252	0043	2	5	29	AN	88	2	4	1																					
253	0043	2	5	29	AN	88	3	4	1																					
254	0043	2	5	29	AN	88	4	4	1																					
255	0043	2	5	29	AN	88	5	4	1																					
256	0043	2	5	29	MOMP	191	50	8	1																					
257	0043	2	5	29	MOMP	191	51	8	1																					
258	0043	2	5	29	MOMP	191	52	8	1																					
259	0043	2	5	29	MOMP	191	53	8	1																					
260	0043	2	5	29	PSS	107	75	2	1																					
261	0043	2	5	29	PSS	107	76	4	1	1		1	1																	
262	0043	2	5	29	PSS	107	77	4	1																					
263	0043	2	5	29	PSS	107	78	4	1																					
264	0043	2	5	29	PSS	107	80	4	1			1																		
265	0043	2	5	29	SAR	123	90	4	1																					
266	0043	2	5	29	SAR	123	91	4	1						1											1	1	1	1	
323	0054	2	9	24	AN	88	1	2	1																					
324	0054	2	9	24	AN	88	3	2	1																					
325	0054	2	9	24	CVS	117	13	4	1																					
326	0054	2	9	24	CVS	117	14	4	1																					
327	0054	2	9	24	CVS	117	15	4	1																					
328	0054	2	9	24	MEP	59	40	4	1							1			1	1										
329	0054	2	9	24	MEP	59	42	2	1							1			1	1										
330	0054	2	9	24	PSS	107	77	2	1																					
331	0054	2	9	24	PSS	107	79	2	1						1															
332	0054	2	9	24	PSS	107	80	2	1			1																		
144	0026	2	10	23	MEP	59	40	4	1							1			1	1										
145	0026	2	10	23	MEP	59	41	4	1							1			1	1										
146	0026	2	10	23	PSS	107	76	2	1	1		1	1																	
147	0026	2	10	23	PSS	107	77	2	1																					
148	0026	2	10	23	PSS	107	79	2	1						1															
149	0026	2	10	23	SAR	123	90	2	1																					
150	0026	2	10	23	SAR	123	91	2	1						1											1	1	1	1	
231	0039	2	13	22	AN	88	1	2	1																					
232	0039	2	13	22	AN	88	3	2	1																					
233	0039	2	13	22	CVS	117	13	4	1																					
234	0039	2	13	22	CVS	117	14	4	1																					
235	0039	2	13	22	CVS	117	15	4	1																					
236	0039	2	13	22	MEP	59	40	4	1							1			1	1										
237	0039	2	13	22	MEP	59	42	2	1							1			1	1										
238	0039	2	13	22	PSS	107	77	2	1																					
239	0039	2	13	22	PSS	107	80	2	1			1																		
284	0048	2	19	20	TO	110	30	8	1					1		1														
285	0048	2	19	20	MSA	29	61	4	1																					
286	0048	2	19	20	MSA	29	62	2	1																					
287	0048	2	19	20	MSA	29	63	2	1																					
288	0048	2	19	20	MSA	29	64	2	1										1											
289	0048	2	19	20	MSA	29	65	4	1						1	1														
290	0048	2	19	20	MSA	29	66	4	1																					
291	0048	2	19	20	MSA	29	68	2	1							1	1	1			1	1	1	1	1					
292	0048	2	19	20	SAR	123	90	4	1																					
293	0048	2	19	20	SAR	123	91	4	1						1											1	1	1	1	
294	0048	2	19	20	SAR	123	92	4	1																	1				1
368	0060	2	19	20	AN	88	3	2	1																					
369	0060	2	19	20	AN	88	4	2	1																					
370	0060	2	19	20	AN	88	5	2	1																					
371	0060	2	19	20	MEP	59	40	4	1							1			1	1										
372	0060	2	19	20	PSS	107	75	2	1																					
373	0060	2	19	20	PSS	107	77	4	1																					
069	0014	2	21	19	AN	88	1	2	1																					
070	0014	2	21	19	AN	88	3	2	1																					

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	001	002	003	004	005	006	SUR 007	VEI 008	LLA 009	NCE 010	IN 011	FOR 012	MAT 013	ION 014	ELI 015	EME 016	NT 017	COD 018	ES 019	020	021	022	023	024	025
071	0014	2	21	19	AN	88	4	2	1															1										
072	0014	2	21	19	AN	88	5	2	1																			1						
073	0014	2	21	19	PSS	107	77	2	1		1	1	1	1			1															1	1	
074	0014	2	21	19	PSS	107	78	4	1		1	1	1																			1		1
075	0014	2	21	19	PSS	107	79	4	1		1	1																				1		1
076	0014	2	21	19	SAR	123	91	2	1		1	1	1	1																	1	1		1
185	0031	2	22	18	AN	88	1	2	1				1	1																				1
186	0031	2	22	18	AN	88	3	2	1																		1							
187	0031	2	22	18	AN	88	5	2	1																			1						
188	0031	2	22	18	ELT	113	20	4	1		1	1																						1
189	0031	2	22	18	ELT	113	21	4	1		1	1	1	1																				1
190	0031	2	22	18	MEP	59	40	4	1							1						1	1							1				1
089	0017	2	28	18	CVS	117	13	2	1																							1	1	
090	0017	2	28	18	MEP	59	40	4	1							1						1	1							1				1
091	0017	2	28	18	PSS	107	77	2	1		1	1	1	1			1															1	1	
001	0001	2	31	16	AN	88	1	2	1				1	1																				1
002	0001	2	31	16	AN	88	3	2	1																		1							
003	0001	2	31	16	CVS	117	14	8	1																							1	1	
004	0001	2	31	16	MEP	59	40	4	1							1						1	1							1				1
005	0001	2	31	16	PSS	107	75	2	1																									
221	0038	2	31	16	AN	88	1	2	1				1	1																				1
222	0038	2	31	16	AN	88	3	2	1																		1							
223	0038	2	31	16	AN	88	5	2	1																			1						
224	0038	2	31	16	CVS	117	13	4	1																							1	1	
225	0038	2	31	16	CVS	117	14	4	1																							1	1	
226	0038	2	31	16	CVS	117	15	4	1													1									1			1
227	0038	2	31	16	MEP	59	40	4	1							1						1	1							1				1
228	0038	2	31	16	MEP	59	42	2	1							1						1	1							1				1
229	0038	2	31	16	PSS	107	77	2	1		1	1	1	1			1															1	1	
230	0038	2	31	16	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
193	0033	2	35	15	AN	88	1	2	1				1	1																				1
194	0033	2	35	15	AN	88	3	2	1																		1							
195	0033	2	35	15	AN	88	5	2	1																			1						
196	0033	2	35	15	MEP	59	40	4	1							1						1	1							1				1
197	0033	2	35	15	PSS	107	77	2	1		1	1	1	1			1															1	1	
198	0033	2	35	15	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
295	0049	2	35	15	PSS	107	75	2	1																									
296	0049	2	35	15	PSS	107	77	4	1		1	1	1	1			1															1	1	
297	0049	2	35	15	PSS	107	79	8	1		1	1																				1		1
304	0052	2	38	15	MEP	59	40	4	1							1						1	1							1				1
305	0052	2	38	15	MEP	59	41	4	1							1						1	1							1				1
306	0052	2	38	15	MEP	59	42	4	1							1						1	1							1				1
307	0052	2	38	15	PSS	107	77	4	1		1	1	1	1			1															1	1	
308	0052	2	38	15	PSS	107	78	4	1		1	1	1																			1		1
309	0052	2	38	15	PSS	107	79	4	1		1	1																				1		1
034	0007	2	42	14	ELT	113	22	2	1		1	1	1																			1		1
035	0007	2	42	14	MEP	59	40	2	1							1						1	1							1				1
036	0007	2	42	14	MEP	59	41	4	1							1						1	1							1				1
037	0007	2	42	14	PSS	107	77	2	1		1	1	1	1			1															1	1	
038	0007	2	42	14	RBS	47	87	4	1			1	1	1																		1		
249	0042	2	45	14	ELT	113	23	4	1		1					1				1													1	1
250	0042	2	45	14	MEP	59	42	4	1							1						1	1							1				1
164	0028	2	47	13	AN	88	1	4	1				1	1																				1
165	0028	2	47	13	AN	88	2	2	1				1																					
166	0028	2	47	13	AN	88	3	4	1																		1							
167	0028	2	47	13	BA	16	10	2	1		1	1																				1		
168	0028	2	47	13	TO	110	30	8	1						1																			1
169	0028	2	47	13	PSS	107	77	4	1		1	1	1	1			1															1	1	
170	0028	2	47	13	PSS	107	79	2	1		1	1																				1		1
245	0041	2	49	11	ELT	113	20	4	1		1	1																						1
246	0041	2	49	11	ELT	113	21	4	1		1	1	1	1																				1

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	026	027	028	029	030	031	SUR 032	VEI 033	LLA 034	NCE 035	IN 036	FOR 037	MAT 038	ION 039	EL 040	EME 041	NT 042	COD 043	ES 044	045	046	047	048	049	050
071	0014	2	21	19	AN	88	4	2	1							1	1					1												
072	0014	2	21	19	AN	88	5	2	1								1		1			1												
073	0014	2	21	19	PSS	107	77	2	1	1	1		1								1					1			1	1				
074	0014	2	21	19	PSS	107	78	4	1	1	1										1									1				
075	0014	2	21	19	PSS	107	79	4	1	1			1								1		1							1				
076	0014	2	21	19	SAR	123	91	2	1	1			1	1	1						1													
185	0031	2	22	18	AN	88	1	2	1	1				1	1																			
186	0031	2	22	18	AN	88	3	2	1					1			1		1	1		1												
187	0031	2	22	18	AN	88	5	2	1								1		1			1												
188	0031	2	22	18	ELT	113	20	4	1	1	1		1								1			1	1			1				1	1	1
189	0031	2	22	18	ELT	113	21	4	1	1	1		1								1			1						1				
190	0031	2	22	18	MEP	59	40	4	1				1								1								1					
089	0017	2	28	18	CVS	117	13	2	1									1																
090	0017	2	28	18	MEP	59	40	4	1				1								1								1					
091	0017	2	28	18	PSS	107	77	2	1	1	1		1								1					1				1	1			
001	0001	2	31	16	AN	88	1	2	1	1				1	1																			
002	0001	2	31	16	AN	88	3	1	1					1			1		1	1		1												
003	0001	2	31	16	CVS	117	14	8	1									1																
004	0001	2	31	16	MEP	59	40	4	1				1								1								1					
005	0001	2	31	16	PSS	107	75	2	1									1												1				
221	0038	2	31	16	AN	88	1	2	1	1				1	1																			
222	0038	2	31	16	AN	88	3	2	1					1			1		1	1		1												
223	0038	2	31	16	AN	88	5	2	1								1		1			1												
224	0038	2	31	16	CVS	117	13	4	1									1																
225	0038	2	31	16	CVS	117	14	4	1									1																
226	0038	2	31	16	CVS	117	15	4	1									1																
227	0038	2	31	16	MEP	59	40	4	1				1								1								1					
228	0038	2	31	16	MEP	59	42	2	1				1								1								1					
229	0038	2	31	16	PSS	107	77	2	1	1	1		1								1					1				1	1			
230	0038	2	31	16	PSS	107	80	2	1	1	1		1								1					1				1				
193	0033	2	35	15	AN	88	1	2	1	1				1	1																			
194	0033	2	35	15	AN	88	3	2	1					1			1		1	1		1												
195	0033	2	35	15	AN	88	5	2	1								1		1			1												
196	0033	2	35	15	MEP	59	40	4	1				1								1								1					
197	0033	2	35	15	PSS	107	77	2	1	1	1		1								1					1				1	1			
198	0033	2	35	15	PSS	107	80	2	1	1	1		1								1					1				1				
295	0049	2	35	15	PSS	107	75	2	1									1													1			
296	0049	2	35	15	PSS	107	77	4	1	1	1		1								1					1				1	1			
297	0049	2	35	15	PSS	107	79	8	1	1			1								1		1								1			
304	0052	2	38	15	MEP	59	40	4	1				1								1								1					
305	0052	2	38	15	MEP	59	41	4	1				1								1								1					
306	0052	2	38	15	MEP	59	42	4	1				1								1								1					
307	0052	2	38	15	PSS	107	77	4	1	1	1		1								1					1				1	1			
308	0052	2	38	15	PSS	107	78	4	1	1	1										1									1				
309	0052	2	38	15	PSS	107	79	4	1	1			1								1		1							1				
034	0007	2	42	14	ELT	113	22	2	1	1	1		1								1					1	1	1						
035	0007	2	42	14	MEP	59	40	2	1				1								1								1					
036	0007	2	42	14	MEP	59	41	4	1				1								1								1					
037	0007	2	42	14	PSS	107	77	2	1	1	1		1								1					1				1	1			
038	0007	2	42	14	RBS	47	87	4	1	1											1									1				
249	0042	2	45	14	ELT	113	23	4	1	1	1		1								1								1		1			
250	0042	2	45	14	MEP	59	42	4	1				1								1								1					
164	0028	2	47	13	AN	88	1	4	1	1				1	1																			
165	0028	2	47	13	AN	88	2	2	1	1				1	1				1	1														
166	0028	2	47	13	AN	88	3	4	1					1		1		1	1			1												
167	0028	2	47	13	BA	16	10	2	1														1											
168	0028	2	47	13	TO	110	30	8	1				1								1													
169	0028	2	47	13	PSS	107	77	4	1	1	1		1								1					1				1	1			
170	0028	2	47	13	PSS	107	79	2	1	1			1								1		1								1			
245	0041	2	49	11	ELT	113	20	4	1	1	1		1								1			1	1			1				1	1	1
246	0041	2	49	11	ELT	113	21	4	1	1	1		1								1			1						1				

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VEI 056	LLA 057	NCE 058	IN 059	FOR 060	MAT 061	TON 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
071	0014	2	21	19	AN	88	4	2	1																					
072	0014	2	21	19	AN	88	5	2	1																					
073	0014	2	21	19	PSS	107	77	2	1																					
074	0014	2	21	19	PSS	107	78	4	1																					
075	0014	2	21	19	PSS	107	79	4	1						1															
076	0014	2	21	19	SAR	123	91	2	1						1											1	1	1	1	
185	0031	2	22	18	AN	88	1	2	1																					
186	0031	2	22	18	AN	88	3	2	1																					
187	0031	2	22	18	AN	88	5	2	1																					
188	0031	2	22	18	ELT	113	20	4	1																					
189	0031	2	22	18	ELT	113	21	4	1																					
190	0031	2	22	18	MEP	59	40	4	1							1			1	1										
089	0017	2	28	18	CVS	117	13	2	1																					
090	0017	2	28	18	MEP	59	40	4	1							1			1	1										
091	0017	2	28	18	PSS	107	77	2	1																					
001	0001	2	31	16	AN	88	1	2	1																					
002	0001	2	31	16	AN	88	3	2	1																					
003	0001	2	31	16	CVS	117	14	8	1																					
004	0001	2	31	16	MEP	59	40	4	1							1			1	1										
005	0001	2	31	16	PSS	107	75	2	1																					
221	0038	2	31	16	AN	88	1	2	1																					
222	0038	2	31	16	AN	88	3	2	1																					
223	0038	2	31	16	AN	88	5	2	1																					
224	0038	2	31	16	CVS	117	13	4	1																					
225	0038	2	31	16	CVS	117	14	4	1																					
226	0038	2	31	16	CVS	117	15	4	1																					
227	0038	2	31	16	MEP	59	40	4	1							1			1	1										
228	0038	2	31	16	MEP	59	42	2	1							1			1	1										
229	0038	2	31	16	PSS	107	77	2	1																					
230	0038	2	31	16	PSS	107	80	2	1			1																		
193	0033	2	35	15	AN	88	1	2	1																					
194	0033	2	35	15	AN	88	3	2	1																					
195	0033	2	35	15	AN	88	5	2	1																					
196	0033	2	35	15	MEP	59	40	4	1							1			1	1										
197	0033	2	35	15	PSS	107	77	2	1																					
198	0033	2	35	15	PSS	107	80	2	1			1																		
295	0049	2	35	15	PSS	107	75	2	1																					
296	0049	2	35	15	PSS	107	77	4	1																					
297	0049	2	35	15	PSS	107	79	8	1						1															
304	0052	2	38	15	MEP	59	40	4	1							1			1	1										
305	0052	2	38	15	MEP	59	41	4	1							1			1	1										
306	0052	2	38	15	MEP	59	42	4	1							1			1	1										
307	0052	2	38	15	PSS	107	77	4	1																					
308	0052	2	38	15	PSS	107	78	4	1																					
309	0052	2	38	15	PSS	107	79	4	1						1															
034	0007	2	42	14	ELT	113	22	2	1		1	1	1																	
035	0007	2	42	14	MEP	59	40	2	1							1			1	1										
036	0007	2	42	14	MEP	59	41	4	1							1			1	1										
037	0007	2	42	14	PSS	107	77	2	1																					
038	0007	2	42	14	RES	47	87	4	1																					
249	0042	2	45	14	ELT	113	23	4	1							1														
250	0042	2	45	14	MEP	59	42	4	1							1			1	1										
164	0028	2	47	13	AN	88	1	4	1																					
165	0028	2	47	13	AN	88	2	2	1																					
166	0028	2	47	13	AN	88	3	4	1																					
167	0028	2	47	13	BA	16	10	2	1																					
168	0028	2	47	13	TO	110	30	8	1					1			1													
169	0028	2	47	13	PSS	107	77	4	1																					
170	0028	2	47	13	PSS	107	79	2	1						1															
245	0041	2	49	11	ELT	113	20	4	1																					
246	0041	2	49	11	ELT	113	21	4	1																					

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	SCR	WT.	PAI	C01	C02	C03	C04	C05	C06	SURVEI	LLANCE	INI	FOR	MAT	ION	EL	EXE	MT	CDD	ES	C20	C22	C23	C24	C25
247	0041	2	49	11	MEP	59	140	41	11								11				11	11										11
248	0041	2	49	11	MEP	59	142	41	11								11				11	11							11			11
310	0053	2	49	11	AN	88	11	41	11					11	11																	11
311	0053	2	49	11	AN	88	31	41	11					11	11											11						
312	0053	2	49	11	AN	88	41	21	11																							
313	0053	2	49	11	AN	88	51	41	11																							
314	0053	2	49	11	CVS	117	131	81	11																		11			11	11	
315	0053	2	49	11	CVS	117	141	81	11																				11	11		
316	0053	2	49	11	CVS	117	151	81	11																			11				
317	0053	2	49	11	MEP	59	140	41	11								11				11	11										11
318	0053	2	49	11	PSS	107	175	41	11																			11				
319	0053	2	49	11	PSS	107	177	41	11					11	11																	
320	0053	2	49	11	PSS	107	178	41	11					11	11			11													11	
321	0053	2	49	11	PSS	107	179	41	11					11	11																11	11
322	0053	2	49	11	PSS	107	180	41	11					11	11																11	11
199	0034	2	58	1	MEP	59	140	-2	11								11				11	11										11
200	0034	2	58	1	MEP	59	141	-2	11								11				11	11										11
201	0034	2	58	1	MEP	59	142	-2	11								11				11	11										11
202	0034	2	58	1	PSS	107	175	21	11																							
109	0023	3	21	31	AN	88	11	41	11					11	11																11	
110	0023	3	21	31	AN	88	21	41	11					11	11																	
111	0023	3	21	31	AN	88	31	41	11																	11						
112	0023	3	21	31	AN	88	41	41	11								11															
113	0023	3	21	31	AN	088	51	41	11																	11						
114	0023	3	21	31	MOFP	191	150	21	11		11		11	11	11															11	11	
115	0023	3	21	31	MOFP	191	151	81	11			11																				
116	0023	3	21	31	PSS	107	175	21	11				11	11	11															11	11	
117	0023	3	21	31	PSS	107	176	41	11				11	11	11																	
118	0023	3	21	31	PSS	107	177	41	11				11	11	11															11	11	
119	0023	3	21	31	PSS	107	178	41	11				11	11	11																	
120	0023	3	21	31	PSS	107	180	41	11		11		11	11	11			11	11									11		11	11	
121	0023	3	21	31	SAR	123	90	41	11			11																				
122	0023	3	21	31	SAR	123	91	41	11				11	11	11														11	11	11	
022	0004	3	41	30	AN	88	11	41	11					11	11																	
013	0004	3	41	30	AN	88	21	41	11																							
014	0004	3	41	30	AN	88	31	41	11																	11						
015	0004	3	41	30	AN	88	41	41	11																							
016	0004	3	41	30	AN	88	51	41	11																	11						
017	0004	3	41	30	MOFP	191	151	81	11				11	11																11	11	
018	0004	3	41	30	MOFP	191	153	81	11				11	11																11	11	
019	0004	3	41	30	PSS	107	175	21	11																							
020	0004	3	41	30	PSS	107	176	41	11				11	11																11	11	
021	0004	3	41	30	PSS	107	177	41	11				11	11																		
022	0004	3	41	30	PSS	107	178	41	11				11	11																11	11	
023	0004	3	41	30	PSS	107	179	41	11				11	11																11	11	
024	0004	3	41	30	PSS	107	180	41	11		11		11	11	11			11	11											11	11	
025	0004	3	41	30	SAR	191	90	41	11			11																				
026	0004	3	41	30	SAR	191	91	41	11				11	11	11															11	11	
271	0045	3	71	25	ELT	113	22	21	11				11	11	11															11	11	
272	0045	3	71	25	RES	47	87	81	11				11	11	11															11	11	
273	0045	3	71	25	SAR	123	90	41	11																							
274	0045	3	71	25	SAR	123	91	41	11				11	11	11															11	11	
298	0050	3	101	23	MEP	59	140	21	11								11				11	11							11			
299	0050	3	101	23	PSS	107	177	21	11				11	11	11															11	11	
300	0050	3	101	23	PSS	107	178	21	11				11	11	11															11	11	
301	0050	3	101	23	SAR	123	92	21	11																					11	11	
213	0037	3	131	22	AN	88	11	21	11				11	11	11																	
214	0037	3	131	22	AN	88	31	21	11																	11						
215	0037	3	131	22	AN	88	51	21	11																	11						
216	0037	3	131	22	MEP	59	140	81	11								11				11	11										11
217	0037	3	131	22	PSS	107	175	41	11																				11			

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	SCR	PA	WT.	C26	C27	C28	C29	C30	C31	C32	C33	C34	C35	C36	C37	C38	C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50
247	0041	2	49	11	MEP	59	40	4	11	11				11								11								11					
248	0041	2	49	11	MEP	59	42	4	11	11				11								11								11					
310	0053	2	49	11	AN	88	11	4	11	11	11				11						11														
311	0053	2	49	11	AN	88	31	4	11	11					11			11			11														
312	0053	2	49	11	AN	88	4	2	11	11							11	11				11													
313	0053	2	49	11	AN	88	5	4	11	11					11			11		11		11													
314	0053	2	49	11	CVS	117	13	8	11	11									11																
315	0053	2	49	11	CVS	117	14	8	11	11									11																
316	0053	2	49	11	CVS	117	15	8	11	11									11																
317	0053	2	49	11	MEP	59	40	4	11	11				11								11								11					
318	0053	2	49	11	PSS	107	75	4	11	11									11													11			
319	0053	2	49	11	PSS	107	77	4	11	11		11		11								11					11					11			
320	0053	2	49	11	PSS	107	78	4	11	11		11										11										11			
321	0053	2	49	11	PSS	107	79	4	11	11		11		11								11		11								11			
322	0053	2	49	11	PSS	107	80	4	11	11		11		11								11								11					
199	0034	2	58	1	MEP	59	40	-2	11					11								11								11					
200	0034	2	58	1	MEP	59	41	-2	11					11								11								11					
201	0034	2	58	1	MEP	59	42	-2	11					11								11								11					
202	0034	2	58	1	PSS	107	75	2	11										11																
109	0023	3	1	31	AN	88	11	4	11	11					11						11														
110	0023	3	1	31	AN	88	21	4	11	11					11						11														
111	0023	3	1	31	AN	88	31	4	11	11								11			11														
112	0023	3	1	31	AN	88	4	4	11	11							11	11				11													
113	0023	3	1	31	AN	088	5	4	11	11																									
114	0023	3	1	31	MOMP	191	50	2	11	11			11	11					11			11													
115	0023	3	1	31	MOMP	191	51	8	11	11			11	11								11													
116	0023	3	1	31	PSS	107	75	2	11	11					11				11																
117	0023	3	1	31	PSS	107	76	4	11	11		11		11								11					11					11			
118	0023	3	1	31	PSS	107	77	4	11	11		11		11								11					11					11			
119	0023	3	1	31	PSS	107	78	4	11	11		11										11										11			
120	0023	3	1	31	PSS	107	80	4	11	11		11		11								11										11			
121	0023	3	1	31	SAR	123	90	4	11	11				11					11																
122	0023	3	1	31	SAR	123	91	4	11	11				11					11																
012	0004	3	41	30	AN	88	1	4	11	11						11					11														
013	0004	3	41	30	AN	88	21	4	11	11						11					11														
014	0004	3	41	30	AN	88	31	4	11	11						11					11														
015	0004	3	41	30	AN	88	4	4	11	11							11					11													
016	0004	3	41	30	AN	88	5	4	11	11							11					11													
017	0004	3	41	30	MOMP	191	51	8	11	11			11									11													
018	0004	3	41	30	MOMP	191	53	8	11	11			11									11													
019	0004	3	41	30	PSS	107	75	2	11	11									11																
020	0004	3	41	30	PSS	107	76	4	11	11		11										11					11					11			
021	0004	3	41	30	PSS	107	77	4	11	11		11										11					11					11			
022	0004	3	41	30	PSS	107	78	4	11	11		11										11										11			
023	0004	3	41	30	PSS	107	79	4	11	11		11										11										11			
024	0004	3	41	30	PSS	107	80	4	11	11		11										11					11								
025	0004	3	41	30	SAR	191	90	4	11	11								11		11															
026	0004	3	41	30	SAR	191	91	4	11	11								11		11															
271	0045	3	71	25	ELT	113	22	2	11	11		11															11		11						
272	0045	3	71	25	HBS	47	87	8	11	11		11															11					11			
273	0045	3	71	25	SAR	123	90	4	11	11							11		11																
274	0045	3	71	25	SAR	123	91	4	11	11							11		11																
298	0050	3	10	23	MEP	59	40	2	11	11				11								11								11					
299	0050	3	10	23	PSS	107	77	2	11	11		11										11					11					11			
300	0050	3	10	23	PSS	107	78	2	11	11		11										11										11			
301	0050	3	10	23	SAR	123	92	2	11	11												11													
213	0037	3	13	22	AN	88	1	2	11	11						11						11													
214	0037	3	13	22	AN	88	3	2	11	11						11						11													
215	0037	3	13	22	AN	88	5	2	11	11												11													
216	0037	3	13	22	MEP	59	40	8	11	11				11								11								11					
217	0037	3	13	22	PSS	107	75	4	11	11									11													11			

THIS PAGE IS BEST QUALITY PRACTICABLE
FROM COPY FURNISHED TO DDC

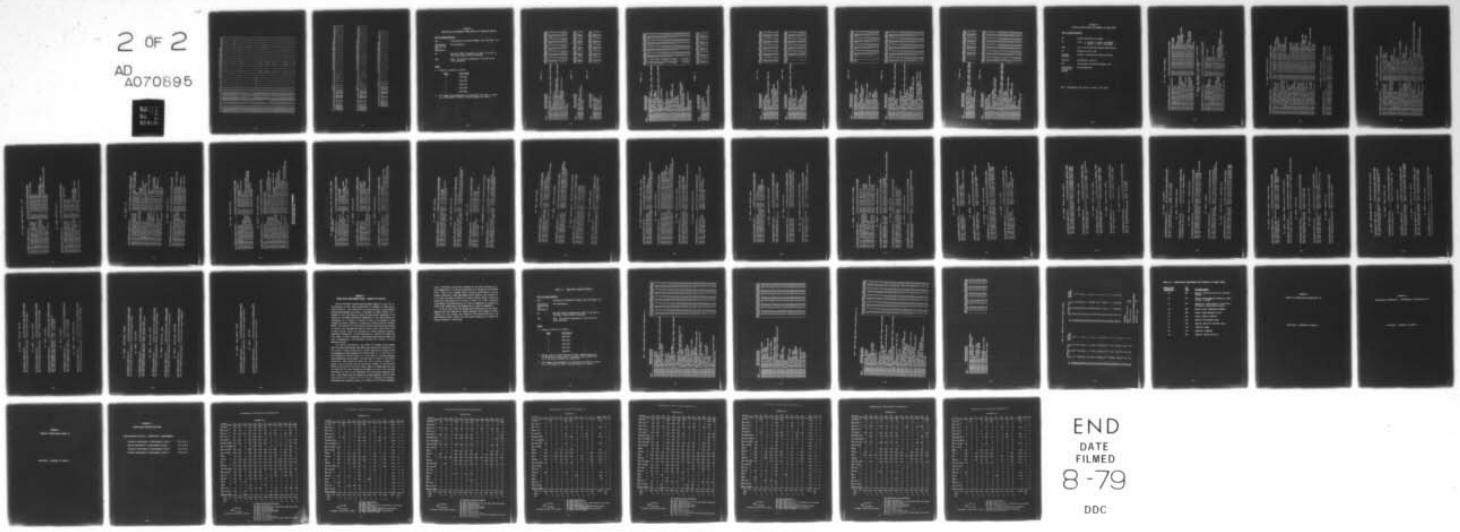
NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VEI 056	LLA 057	NCE 058	IN 059	FOR 060	MAT 061	ION 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
247	0041	2	49	11	MEP	59	40	4	1							1			1	1										
248	0041	2	49	11	MEP	59	42	4	1							1			1	1										
310	0053	2	49	11	AN	88	1	4	1																					
311	0053	2	49	11	AN	88	3	4	1																					
312	0053	2	49	11	AN	88	4	2	1																					
313	0053	2	49	11	AN	88	5	4	1																					
314	0053	2	49	11	CVS	117	13	8	1																					
315	0053	2	49	11	CVS	117	14	8	1																					
316	0053	2	49	11	CVS	117	15	8	1																					
317	0053	2	49	11	MEP	59	40	4	1							1			1	1										
318	0053	2	49	11	PSS	107	75	4	1																					
319	0053	2	49	11	PSS	107	77	4	1																					
320	0053	2	49	11	PSS	107	78	4	1																					
321	0053	2	49	11	PSS	107	79	4	1						1															
322	0053	2	49	11	PSS	107	80	4	1			1																		
199	0034	2	58	1	MEP	59	40	-2	1							1			1	1										
200	0034	2	58	1	MEP	59	41	-2	1							1			1	1										
201	0034	2	58	1	MEP	59	42	-2	1							1			1	1										
202	0034	2	58	1	PSS	107	75	2	1																					
109	0023	3	1	31	AN	88	1	4	1																					
110	0023	3	1	31	AN	88	2	4	1																					
111	0023	3	1	31	AN	88	3	4	1																					
112	0023	3	1	31	AN	88	4	4	1																					
113	0023	3	1	31	AN	088	5	4	1																					
114	0023	3	1	31	MOMP	191	50	2	1																					
115	0023	3	1	31	MOMP	191	51	8	1																					
116	0023	3	1	31	PSS	107	75	2	1																					
117	0023	3	1	31	PSS	107	76	4	1	1		1	1																	
118	0023	3	1	31	PSS	107	77	4	1																					
119	0023	3	1	31	PSS	107	78	4	1																					
120	0023	3	1	31	PSS	107	80	4	1			1																		
121	0023	3	1	31	SAR	123	90	4	1																					
122	0023	3	1	31	SAR	123	91	4	1						1											1	1	1	1	
012	0004	3	4	30	AN	88	1	4	1																					
013	0004	3	4	30	AN	88	2	4	1																					
014	0004	3	4	30	AN	88	3	4	1																					
015	0004	3	4	30	AN	88	4	4	1																					
016	0004	3	4	30	AN	88	5	4	1																					
017	0004	3	4	30	MOMP	191	51	8	1																					
018	0004	3	4	30	MOMP	191	53	8	1																					
019	0004	3	4	30	PSS	107	75	2	1																					
020	0004	3	4	30	PSS	107	76	4	1	1		1	1																	
021	0004	3	4	30	PSS	107	77	4	1																					
022	0004	3	4	30	PSS	107	78	4	1																					
023	0004	3	4	30	PSS	107	79	4	1						1															
024	0004	3	4	30	PSS	107	80	4	1			1																		
025	0004	3	4	30	SAR	191	90	4	1																					
026	0004	3	4	30	SAR	191	91	4	1						1											1	1	1	1	
271	0045	3	7	25	ELT	113	22	2	1		1	1	1																	
272	0045	3	7	25	RES	47	87	8	1																					
273	0045	3	7	25	SAR	123	90	4	1						1											1	1	1	1	
274	0045	3	7	25	SAR	123	91	4	1																	1				1
298	0050	3	10	23	MEP	59	40	2	1							1			1	1										
299	0050	3	10	23	PSS	107	77	2	1																					
300	0050	3	10	23	PSS	107	78	2	1																					
301	0050	3	10	23	SAR	123	92	2	1																	1				1
213	0037	3	13	22	AN	88	1	2	1																					
214	0037	3	13	22	AN	88	3	2	1																					
215	0037	3	13	22	AN	88	5	2	1																					
216	0037	3	13	22	MEP	59	40	8	1							1			1	1										
217	0037	3	13	22	PSS	107	75	4	1																					

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	001	002	003	004	005	006	SUR 007	VEI 008	LLA 009	NCE 010	IN 011	FOR 012	MAT 013	ION 014	EL 015	EME 016	NT 017	COD 018	ES 019	020	021	022	023	024	025
218	0037	3	13	22	PSS	107	77	8	1		1	1	1	1			1														1	1	
220	0037	3	13	22	PSS	107	80	8	1	1		1	1	1			1	1													1	1	
086	0016	3	22	18	MEP	59	40	2	1							1						1	1										1
087	0016	3	22	18	PSS	107	75	2	1																								
088	0016	3	22	18	PSS	107	79	4	1		1	1																			1		1
104	0022	3	22	18	ELT	113	20	4	1		1	1																					1
105	0022	3	22	18	ELT	113	21	4	1		1	1	1	1																			1
106	0022	3	22	18	MEP	59	40	4	1							1						1	1							1			1
107	0022	3	22	18	SAR	123	90	2	1															1			1	1	1		1	1		1
108	0022	3	22	18	SAR	123	91	2	1		1	1	1	1																	1	1		1
039	0008	3	34	16	PSS	107	77	8	1		1	1	1	1			1															1	1	
040	0008	3	34	16	PSS	107	78	8	1		1	1	1																			1		1
041	0008	3	34	16	PSS	107	80	8	1	1		1	1	1			1	1														1	1	
171	0029	3	35	15	BA	16	10	2	1		1	1																			1			
172	0029	3	35	15	TO	110	30	2	1						1																			1
173	0029	3	35	15	MEP	59	40	2	1							1						1	1							1			1
174	0029	3	35	15	MEP	59	41	2	1							1						1	1							1			1
175	0029	3	35	15	PSS	107	75	2	1																								
176	0029	3	35	15	PSS	107	77	2	1		1	1	1	1			1															1	1	
177	0029	3	35	15	PSS	107	79	4	1		1	1																				1		1
178	0029	3	35	15	SAR	123	90	2	1															1			1	1	1		1	1		1
179	0029	3	35	15	SAR	123	91	2	1		1	1	1	1																	1	1		1
275	0046	3	51	11	AN	88	1	2	1				1	1																				1
276	0046	3	51	11	AN	88	2	2	1				1																					
277	0046	3	51	11	AN	88	3	2	1																		1							
278	0046	3	51	11	AN	88	5	2	1																			1						
279	0046	3	51	11	PSS	107	77	2	1		1	1	1	1			1															1	1	
333	0055	3	55	9	ELT	113	22	2	1		1	1	1																			1		1
334	0055	3	55	9	PSS	107	76	2	1		1	1																			1			1
335	0055	3	55	9	PSS	107	77	2	1		1	1	1	1			1															1	1	
336	0055	3	55	9	PSS	107	79	2	1		1	1																				1		1
029	0006	3	56	8	MEP	59	40	4	1							1						1	1							1			1
030	0006	3	56	8	MEP	59	42	4	1							1						1	1							1			1
031	0006	3	56	8	SAR	123	90	2	1															1			1	1	1		1	1		1
032	0006	3	56	8	SAR	123	91	2	1		1	1	1	1																	1	1		1
033	0006	3	56	8	SAR	123	92	2	1									1											1			1	1	1
280	0047	3	57	7	MEP	59	40	4	1							1						1	1							1			1
281	0047	3	57	7	MEP	59	41	4	1							1						1	1							1			1
282	0047	3	57	7	MEP	59	42	4	1							1						1	1							1			1
283	0047	3	57	7	PSS	107	75	4	1																									
240	0040	4	38	15	AN	88	3	2	1																		1							
241	0040	4	38	15	AN	88	5	2	1																			1						
242	0040	4	38	15	MEP	59	40	8	1							1						1	1							1			1
243	0040	4	38	15	MEP	59	42	8	1							1						1	1							1			1
244	0040	4	38	15	PSS	107	80	2	1	1		1	1	1			1	1														1	1	
337	0056	4	38	15	AN	88	1	2	1				1	1																				1
338	0056	4	38	15	AN	88	3	2	1																		1							
339	0056	4	38	15	AN	88	4	2	1															1										
340	0056	4	38	15	AN	88	5	2	1																			1						
341	0056	4	38	15	CVS	117	13	4	1																							1	1	
342	0056	4	38	15	CVS	117	14	4	1																							1	1	
343	0056	4	38	15	CVS	117	15	4	1													1									1			1
344	0056	4	38	15	MEP	59	40	4	1							1						1	1							1			1
345	0056	4	38	15	MEP	59	42	4	1							1						1	1							1			1
346	0056	4	38	15	PSS	107	75	4	1																									
347	0056	4	38	15	PSS	107	77	4	1		1	1	1	1			1															1	1	
348	0056	4	38	15	PSS	107	78	4	1		1	1	1																			1		1
349	0056	4	38	15	PSS	107	79	4	1		1	1																				1		1
350	0056	4	38	15	PSS	107	80	4	1	1		1	1	1			1	1														1	1	
364	0059	4	38	15	MEP	59	40	2	1							1						1	1							1			1
365	0059	4	38	15	MEP	59	41	2	1							1						1	1							1			1

NO.	EVENT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	C26	C27	C28	C29	C30	C31	SURVEILLANCE C32	C33	C34	C35	C36	C37	C38	C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50
218	00037	3	13	22	PSS	107	77	8	1	1	1		1								1					1				1	1			
220	00037	3	13	22	PSS	107	80	8	1	1	1		1								1					1				1				
086	00016	3	22	18	MEP	59	40	2	1				1								1								1					
087	00016	3	22	18	PSS	107	75	2	1									1												1				
088	00016	3	22	18	PSS	107	79	4	1	1			1								1		1							1				
104	00022	3	22	18	ELT	113	20	4	1	1	1		1								1			1	1			1			1	1	1
105	00022	3	22	18	ELT	113	21	4	1	1	1		1								1			1						1				
106	00022	3	22	18	MEP	59	40	4	1				1								1								1					
107	00022	3	22	18	SAR	123	90	2	1	1			1			1	1				1													
108	00022	3	22	18	SAR	123	91	2	1	1			1	1	1						1													
039	00008	3	34	16	PSS	107	77	8	1	1	1		1								1					1				1	1			
040	00008	3	34	16	PSS	107	78	8	1	1	1										1										1			
041	00008	3	34	16	PSS	107	80	8	1	1	1		1								1					1				1				
171	00029	3	35	15	BA	16	10	2	1														1											
172	00029	3	35	15	TO	110	30	2	1				1								1													
173	00029	3	35	15	MEP	59	40	2	1				1								1								1					
174	00029	3	35	15	MEP	59	41	2	1				1								1								1					
175	00029	3	35	15	PSS	107	75	2	1									1												1				
176	00029	3	35	15	PSS	107	77	2	1	1	1		1								1					1				1	1			
177	00029	3	35	15	PSS	107	79	4	1	1			1								1		1								1			
178	00029	3	35	15	SAR	123	90	2	1	1			1			1	1				1													
179	00029	3	35	15	SAR	123	91	2	1	1			1	1	1						1													
275	00046	3	51	11	AN	88	1	2	1	1				1	1																			
276	00046	3	51	11	AN	88	2	2	1	1				1	1				1	1														
277	00046	3	51	11	AN	88	3	2	1					1				1		1		1												
278	00046	3	51	11	AN	88	5	2	1									1		1		1												
279	00046	3	51	11	PSS	107	77	2	1	1	1		1								1					1				1	1			
333	00055	3	55	9	ELT	113	22	2	1	1	1		1								1					1	1	1						
334	00055	3	55	9	PSS	107	76	2	1	1	1		1								1					1	1			1				
335	00055	3	55	9	PSS	107	77	2	1	1	1		1								1					1				1	1			
336	00055	3	55	9	PSS	107	79	2	1	1			1								1		1								1			
029	00006	3	56	8	MEP	59	40	4	1				1								1								1					
030	00006	3	56	8	MEP	59	42	4	1				1								1								1					
031	00006	3	56	8	SAR	123	90	2	1	1			1			1	1				1													
032	00006	3	56	8	SAR	123	91	2	1	1			1	1	1						1													
033	00006	3	56	8	SAR	123	92	2	1	1			1								1													
280	00047	3	57	7	MEP	59	40	4	1				1								1								1					
281	00047	3	57	7	MEP	59	41	4	1				1								1								1					
282	00047	3	57	7	MEP	59	42	4	1				1								1								1					
283	00047	3	57	7	PSS	107	75	4	1									1												1				
240	00040	4	38	15	AN	88	3	2	1					1				1		1	1		1											
241	00040	4	38	15	AN	88	5	2	1									1		1			1											
242	00040	4	38	15	MEP	59	40	8	1				1								1								1					
243	00040	4	38	15	MEP	59	42	8	1				1								1								1					
244	00040	4	38	15	PSS	107	80	2	1	1	1		1								1					1				1				
337	00056	4	38	15	AN	88	1	2	1	1				1	1																			
338	00056	4	38	15	AN	88	3	2	1					1				1		1	1		1											
339	00056	4	38	15	AN	88	4	2	1							1	1						1											
340	00056	4	38	15	AN	88	5	2	1								1			1			1											
341	00056	4	38	15	CVS	117	13	4	1									1																
342	00056	4	38	15	CVS	117	14	4	1									1																
343	00056	4	38	15	CVS	117	15	4	1									1																
344	00056	4	38	15	MEP	59	40	4	1				1								1								1					
345	00056	4	38	15	MEP	59	42	4	1				1								1								1					
346	00056	4	38	15	PSS	107	75	4	1									1													1			
347	00056	4	38	15	PSS	107	77	4	1	1	1		1								1					1				1	1			
348	00056	4	38	15	PSS	107	78	4	1	1	1										1										1			
349	00056	4	38	15	PSS	107	79	4	1	1			1								1		1								1			
350	00056	4	38	15	PSS	107	80	4	1	1	1		1								1					1				1				
364	00059	4	38	15	MEP	59	40	2	1				1								1								1					
365	00059	4	38	15	MEP	59	41	2	1				1								1								1					

AD-A070 895 FORECASTING INTERNATIONAL LTD ARLINGTON VA F/G 15/4
A STUDY OF USCG SURVEILLANCE REQUIREMENTS OVER THE NEXT 25 YEAR--ETC(U)
APR 78 M J CETRON, C F MCFADDEN, O H LANDUA DOT-CG-836036-A
UNCLASSIFIED USCG-D-10-79-VOL-2 NL

2 OF 2
AD A070895



END
DATE FILMED
8-79
DDC

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VET 056	LIA 057	NCE 058	IN 059	FOR 060	MAT 061	ION 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
218	0037	3	13	22	PSS	107	77	8	1																					
220	0037	3	13	22	PSS	107	80	8	1			1																		
086	0016	3	22	18	MEP	59	40	2	1							1			1	1										
087	0016	3	22	18	PSS	107	75	2	1																					
088	0016	3	22	18	PSS	107	79	4	1						1															
104	0022	3	22	18	ELT	113	20	4	1																					
105	0022	3	22	18	ELT	113	21	4	1																					
106	0022	3	22	18	MEP	59	40	4	1							1			1	1										
107	0022	3	22	18	SAR	123	90	2	1																					
108	0022	3	22	18	SAR	123	91	2	1						1											1	1	1	1	
039	0008	3	34	16	PSS	107	77	8	1																					
040	0008	3	34	16	PSS	107	78	8	1																					
041	0008	3	34	16	PSS	107	80	8	1			1																		
171	0029	3	35	15	BA	16	10	2	1																					
172	0029	3	35	15	TO	110	30	2	1					1		1														
173	0029	3	35	15	MEP	59	40	2	1							1			1	1										
174	0029	3	35	15	MEP	59	41	2	1							1			1	1										
175	0029	3	35	15	PSS	107	75	2	1																					
176	0029	3	35	15	PSS	107	77	2	1																					
177	0029	3	35	15	PSS	107	79	4	1						1															
178	0029	3	35	15	SAR	123	90	2	1																					
179	0029	3	35	15	SAR	123	91	2	1						1											1	1	1	1	
275	0046	3	51	11	AN	88	1	2	1																					
276	0046	3	51	11	AN	88	2	2	1																					
277	0046	3	51	11	AN	88	3	2	1																					
278	0046	3	51	11	AN	88	5	2	1																					
279	0046	3	51	11	PSS	107	77	2	1																					
333	0055	3	55	9	ELT	113	22	2	1		1	1	1																	
334	0055	3	55	9	PSS	107	76	2	1	1		1	1																	
335	0055	3	55	9	PSS	107	77	2	1																					
336	0055	3	55	9	PSS	107	79	2	1						1															
029	0006	3	56	8	MEP	59	40	4	1							1			1	1										
030	0006	3	56	8	MEP	59	42	4	1							1			1	1										
031	0006	3	56	8	SAR	123	90	2	1																					
032	0006	3	56	8	SAR	123	91	2	1						1											1	1	1	1	
033	0006	3	56	8	SAR	123	92	2	1																	1				1
280	0047	3	57	7	MEP	59	40	4	1							1			1	1										
281	0047	3	57	7	MEP	59	41	4	1							1			1	1										
282	0047	3	57	7	MEP	59	42	4	1							1			1	1										
283	0047	3	57	7	PSS	107	75	4	1																					
240	0040	4	38	15	AN	88	3	2	1																					
241	0040	4	38	15	AN	88	5	2	-1																					
242	0040	4	38	15	MEP	59	40	8	1							1			1	1										
243	0040	4	38	15	MEP	59	42	8	1							1			1	1										
244	0040	4	38	15	PSS	107	80	2	1			1																		
337	0056	4	38	15	AN	88	1	2	1																					
338	0056	4	38	15	AN	88	3	2	1																					
339	0056	4	38	15	AN	88	4	2	1																					
340	0056	4	38	15	AN	88	5	2	1																					
341	0056	4	38	15	CVS	117	13	4	1																					
342	0056	4	38	15	CVS	117	14	4	1																					
343	0056	4	38	15	CVS	117	15	4	1																					
344	0056	4	38	15	MEP	59	40	4	1							1			1	1										
345	0056	4	38	15	MEP	59	42	4	1							1			1	1										
346	0056	4	38	15	PSS	107	75	4	1																					
347	0056	4	38	15	PSS	107	77	4	1																					
348	0056	4	38	15	PSS	107	78	4	1																					
349	0056	4	38	15	PSS	107	79	4	1						-1															
350	0056	4	38	15	PSS	107	80	4	1			1																		
364	0059	4	38	15	MEP	59	40	2	1							1			1	1										
365	0059	4	38	15	MEP	59	41	2	1							1			1	1										

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	001	002	003	004	005	006	SUR 007	VEI 008	LLA 009	NCE 010	IN 011	POR 012	MAT 013	ION 014	EL 015	EME 016	NT 017	COD 018	ES 019	020	021	022	023	024	025
366	0059	4	38	15	PSS	107	77	2	1		1	1	1	1			1														1	1	
367	0059	4	38	15	PSS	107	78	8	1		1	1	1																		1		1
351	0057	4	54	9	AN	88	1	2	1				1	1																				1
352	0057	4	54	9	AN	88	3	2	1																		1							
353	0057	4	54	9	MEP	59	40	2	1							1						1	1							1				1
354	0057	4	54	9	PSS	107	79	2	1		1	1																			1			1

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	026	027	028	029	030	031	SUR 032	VEI 033	LLA 034	NCE 035	IN 036	POR 037	MAT 038	ION 039	EL 040	EME 041	NT 042	COD 043	ES 044	045	046	047	048	049	050
366	0059	4	38	15	PSS	107	77	2	1	1	1		1								1					1				1	1			
367	0059	4	38	15	PSS	107	78	8	1	1	1										1										1			
351	0057	4	54	9	AN	88	1	2	1	1				1	1																			
352	0057	4	54	9	AN	88	3	2	1					1			1		1	1		1												
353	0057	4	54	9	MEP	59	40	2	1				1								1							2						
354	0057	4	54	9	PSS	107	79	2	1	1			1								1		1								1			

NO.	EVNT	SN	RANK	WT.A	PROG	WT.	PA	PA SCR	PA WT.	051	052	053	054	SUR 055	VEI 056	LLA 057	NCE 058	IN 059	POR 060	MAT 061	ION 062	EL 063	EME 064	NT 065	COD 066	ES 067	068	069	070	071
366	0059	4	38	15	PSS	107	77	2	1																					
367	0059	4	38	15	PSS	107	78	8	1																					
351	0057	4	54	9	AN	88	1	2	1																					
352	0057	4	54	9	AN	88	3	2	1																					
353	0057	4	54	9	MEP	59	40	2	1							1			1	1										
354	0057	4	54	9	PSS	107	79	2	1						1															

APPENDIX G

SURVEILLANCE REQUIREMENTS MODEL RESULTS BY OPERATING PROGRAM

KEY TO COLUMN HEADINGS

SIE	Surveillance Information Element code (See Table 3-2).
Surveillance Function and SIE Description	Self-explanatory.
WT.	Relative weight (normalized to 1000) of the SIE in the scene (5-year period) indicated.
RNK	Rank. The relative importance of the SIE in the scene indicated.

NOTES

1. Scenes are defined as follows:

SCENE	TIME PERIOD
1	1980-1984
2	1985-1989
3	1990-1994
4	1995-1999
5	2000-2004

2. SIE weights (non-normalized) are cumulative from scene to scene, e.g., SIE weights in Scene 2 include weights for Scene 1.

PROGRAM: AN

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
033	IDENTIFY: CHARACTERISTIC CODE	136	1	137	1	140	1	141	1	141	1
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	90	6	114	3	121	2	118	2	118	2
030	IDENTIFY: COLOR	130	2	118	2	111	3	111	3	111	3
019	DETECT: SOUND EMISSION IN AIR	103	4	85	6	93	4	95	4	95	4
038	OBSERVE: TRANSMISSION TIME SCHEDULE	95	5	91	4	90	5	91	5	91	5
018	DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ)	108	3	90	5	81	6	82	6	82	6
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	74	7	71	7	65	7	65	7	65	7
025	LOCATE: GEOGRAPHICAL POSITION	74	7	71	7	65	7	65	7	65	7
035	OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE	57	9	54	9	57	9	57	9	57	9
015	DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)	30	12	49	10	53	10	53	10	53	10
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	41	10	46	11	46	11	46	11	46	11
036	OBSERVE: VISIBILITY ARCS	31	11	33	12	34	12	34	12	34	12
031	IDENTIFY: SHAPE	22	13	28	13	30	13	29	13	29	13
032	IDENTIFY: FREQUENCY	8	14	12	14	13	14	13	14	13	14

PROGRAM: BA

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
002	DETECT: LARGE VESSEL (150'+)	308	1	308	1	308	1	308	1	308	1
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	308	1	308	1	308	1	308	1	308	1
039	OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL	308	1	308	1	308	1	308	1	308	1
022	LOCATE: RANGE OR BEARING	77	4	77	4	77	4	77	4	77	4

PROGRAM: CVS

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
034	OBSERVE: STRUCTURAL INTEGRITY	434	1	444	1	444	1	444	1	444	1
023	LOCATE: RANGE AND BEARING	150	2	166	2	166	2	166	2	166	2
024	LOCATE: ALTITUDE OR DEPTH	150	2	166	2	166	2	166	2	166	2
013	DETECT: LIQUID POLLUTANT	133	4	111	4	111	4	111	4	111	4
022	LOCATE: RANGE OR BEARING	66	5	56	5	56	5	56	5	56	5
025	LOCATE: GEOGRAPHICAL POSITION	66	5	56	5	56	5	56	5	56	5

PROGRAM: ELT

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
025	LOCATE: GEOGRAPHICAL POSITION	73	7	98	2	103	1	103	1	103	1
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	73	7	90	3	97	2	97	2	97	2
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	182	1	106	1	97	3	97	3	97	3
002	DETECT: LARGE VESSEL (150'+)	22	15	83	4	88	4	88	4	88	4
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	100	6	80	5	78	5	78	5	78	5
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	102	2	74	6	70	6	70	6	70	6
027	IDENTIFY: FLAG (U.S. OR FOREIGN)	36	13	53	7	54	7	54	7	54	7
035	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	29	14	41	11	42	8	42	8	42	8
052	OBSERVE: CONTRABAND: DRUGS	101	3	45	8	40	9	40	9	40	9
053	OBSERVE: CONTRABAND: WEAPONS AND MUNITIONS	101	3	45	8	40	9	40	9	40	9
054	OBSERVE: ILLEGAL ALIENS	101	3	45	8	40	9	40	9	40	9
029	IDENTIFY: TYPE	18	16	26	12	27	12	27	12	27	12
040	OBSERVE: FISHING ACTIVITY	0	22	22	18	25	13	25	13	25	13
044	OBSERVE: SUSPICIOUS ACTIVITY: FLEEING	36	12	23	14	24	14	24	14	24	14
047	OBSERVE: HAZARDOUS ACTIVITY	7	21	26	13	21	15	21	15	21	15
023	LOCATE: RANGE AND BEARING	50	9	22	15	20	16	20	16	20	16
042	OBSERVE: SUSPICIOUS ACTIVITY: HOVERING	50	9	22	15	20	16	20	16	20	16
043	OBSERVE: SUSPICIOUS ACTIVITY: TRANSFERRING CARGO	50	9	22	15	20	16	20	16	20	16
048	OBSERVE: FISH CATCH: SPECIES	-56	24	5	27	15	19	15	19	15	19
049	OBSERVE: FISH CATCH: FISH SIZE	-56	24	5	27	15	19	15	19	15	19
050	OBSERVE: FISH CATCH: QUANTITY	-56	24	5	27	15	19	15	19	15	19
007	DETECT: SOLID POLLUTANT, TARBALL			15	19	11	22	11	22	11	22
011	DETECT: SEA BOTTOM			8	20	5	23	5	23	5	23
045	OBSERVE: SUSPICIOUS ACTIVITY: DISCHARGING POLLUTANT			8	20	5	23	5	23	5	23
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST			8	20	5	23	5	23	5	23
041	OBSERVE: FISHERY SUPPORT OPERATIONS	-13	23	1	31	4	26	4	26	4	26
030	IDENTIFY: COLOR	13	17	5	23	4	27	4	27	4	27
031	IDENTIFY: SHAPE	13	17	5	23	4	27	4	27	4	27
035	OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE	13	17	5	23	4	27	4	27	4	27
036	OBSERVE: VISIBILITY ARCS	13	17	5	23	4	27	4	27	4	27
024	LOCATE: ALTITUDE OR DEPTH			4	30	3	31	3	31	3	31

PROGRAM: IO

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
006	DETECT: ICE FIELD, ICE JAM	222	1	222	1	222	1	222	1	222	1
025	LOCATE: GEOGRAPHICAL POSITION	222	1	222	1	222	1	222	1	222	1
055	OBSERVE: ICE THICKNESS	222	1	222	1	222	1	222	1	222	1
029	IDENTIFY: TYPE	111	4	111	4	111	4	111	4	111	4
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	111	4	111	4	111	4	111	4	111	4
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST	111	4	111	4	111	4	111	4	111	4

PROGRAM: MEP

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
013	DETECT: LIQUID POLLUTANT	136	1	140	1	140	1	142	1	142	1
025	LOCATE: GEOGRAPHICAL POSITION	136	1	140	1	140	1	142	1	142	1
007	DETECT: SOLID POLLUTANT, TARBALL	133	3	129	3	129	3	128	3	128	3
021	DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS	133	3	129	3	129	3	128	3	128	3
014	DETECT: GASEOUS POLLUTANT	84	5	82	5	81	5	81	5	81	5
029	IDENTIFY: TYPE	84	5	82	5	81	5	81	5	81	5
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	68	7	70	7	70	7	71	7	71	7
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST	68	7	70	7	70	7	71	7	71	7
060	OBSERVE: PROFILES: DEPTH VS TEMPERATURE	58	9	58	9	59	9	58	9	58	9
061	OBSERVE: PROFILES: DEPTH VS SALINITY	58	9	58	9	59	9	58	9	58	9
045	OBSERVE: SUSPICIOUS ACTIVITY: DISCHARGING POLLUTANT	42	11	41	11	40	11	40	11	40	11

PROGRAM: MOMP

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
023	LOCATE: RANGE AND BEARING			223	1	215	1	215	1	215	1
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE			146	2	160	2	160	2	160	2
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST			89	3	86	3	86	3	86	3
046	OBSERVE: HOSTILE ACTIVITY			89	3	86	3	86	3	86	3
002	DETECT: LARGE VESSEL (150'+)			56	8	73	5	73	5	73	5
003	DETECT: MEDIUM SIZED VESSEL (40'-150')			56	8	73	5	73	5	73	5
029	IDENTIFY: TYPE			70	5	72	7	72	7	72	7
028	IDENTIFY: FRIEND OR FOE			66	6	64	8	64	8	64	8
024	LOCATE: ALTITUDE OR DEPTH			61	7	50	9	50	9	50	9
025	LOCATE: GEOGRAPHICAL POSITION			45	10	43	10	43	10	43	10
001	DETECT: AIRBORNE AIRCRAFT, MISSILE, AIRSHIP			38	11	31	11	31	11	31	11
010	DETECT: LARGE SUBMERGED SUBMARINE			38	11	25	12	25	12	25	12
035	OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE			23	13	22	13	22	13	22	13

PROGRAM: MSA

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
025	LOCATE: GEOGRAPHICAL POSITION	500	1	388	1	388	1	388	1	388	1
017	DETECT: ELECTROMAGNETIC EMISSION: HEAT (1-400 THZ)	500	1	202	2	202	2	202	2	202	2
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST			81	3	81	3	81	3	81	3
012	DETECT: SEA SURFACE			75	4	75	4	75	4	75	4
007	DETECT: SOLID POLLUTANT, TARBALL			37	5	37	5	37	5	37	5
039	OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL			37	5	37	5	37	5	37	5
060	OBSERVE: PROFILES: DEPTH VS TEMPERATURE			37	5	37	5	37	5	37	5
011	DETECT: SEA BOTTOM			25	8	25	8	25	8	25	8
024	LOCATE: ALTITUDE OR DEPTH			25	8	25	8	25	8	25	8
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST			22	10	22	10	22	10	22	10
056	OBSERVE: SIZE OF OBJECT			19	11	19	11	19	11	19	11
063	OBSERVE: SURFACE WEATHER: PRESSURE			12	12	12	12	12	12	12	12
066	OBSERVE: WIND VELOCITY			12	12	12	12	12	12	12	12
058	OBSERVE: SEAS AND SWELLS: HEIGHT			6	14	6	14	6	14	6	14
059	OBSERVE: SEAS AND SWELLS: PERIOD			6	14	6	14	6	14	6	14
062	OBSERVE: SURFACE WEATHER: TEMPERATURE			6	14	6	14	6	14	6	14
064	OBSERVE: SURFACE WEATHER: HUMIDITY			6	14	6	14	6	14	6	14
065	OBSERVE: CLOUD TYPE			3	18	3	18	3	18	3	18

PROGRAM: PSS

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
047	OBSERVE: HAZARDOUS ACTIVITY	91	4	114	1	118	1	120	1	120	1
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	111	1	103	2	100	2	100	2	100	2
002	DETECT: LARGE VESSEL (150'+)	92	2	89	3	84	3	84	3	84	3
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	91	3	83	4	79	4	80	4	80	4
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	66	6	68	5	68	5	69	5	69	5
023	LOCATE: RANGE AND BEARING	71	5	61	6	57	6	58	6	58	6
046	OBSERVE: HOSTILE ACTIVITY	46	10	48	10	50	7	49	7	49	7
029	IDENTIFY: TYPE	51	9	49	8	49	8	48	8	48	8
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	51	8	48	9	46	9	46	9	46	9
025	LOCATE: GEOGRAPHICAL POSITION	59	7	49	7	45	10	45	10	45	10
034	OBSERVE: STRUCTURAL INTEGRITY	5	24	33	15	42	11	43	11	43	11
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	39	11	40	11	41	12	41	12	41	12
008	DETECT: DIVER (UNDERWATER SWIMMER)	39	11	40	11	41	12	41	12	41	12
042	OBSERVE: SUSPICIOUS ACTIVITY: HOVERING	33	13	37	13	37	14	37	14	37	14
027	IDENTIFY: FLAG (U.S. OR FOREIGN)	31	14	34	14	34	15	34	15	34	15
053	OBSERVE: CONTRABAND: WEAPONS AND MUNITIONS	22	15	18	16	20	16	20	16	20	16
001	DETECT: AIRBORNE AIRCRAFT, MISSILE, AIRSHIP	19	17	14	17	16	17	16	17	16	17
009	DETECT: SMALL SUBMERGED SUBMERSIBLE, MINE, SUNKEN VESSEL	19	17	14	17	16	17	16	17	16	17
056	OBSERVE: SIZE OF OBJECT	19	16	14	19	12	19	12	19	12	19
024	LOCATE: ALTITUDE OR DEPTH	10	19	10	20	10	20	10	20	10	20
021	DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS	7	21	8	21	8	21	8	21	8	21
043	OBSERVE: SUSPICIOUS ACTIVITY: TRANSFERRING CARGO	7	21	8	21	8	21	8	21	8	21
051	OBSERVE: CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES	7	21	8	21	8	21	8	21	8	21
039	OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL	10	20	7	24	6	24	6	24	6	24
054	OBSERVE: ILLEGAL ALIENS	3	25	4	25	4	25	4	25	4	25

PROGRAM: RBS

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN E 1 WT.	SCEN E 1 RNK	SCEN E 2 WT.	SCEN E 2 RNK	SCEN E 3 WT.	SCEN E 3 RNK	SCEN E 4 WT.	SCEN E 4 RNK	SCEN E 5 WT.	SCEN E 5 RNK
003	DETECT: MEDIUM SIZED VESSEL (40'-150')			167	1	167	1	167	1	167	1
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE			167	1	167	1	167	1	167	1
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT			167	1	167	1	167	1	167	1
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST			167	1	167	1	167	1	167	1
047	OBSERVE: HAZARDOUS ACTIVITY			167	1	167	1	167	1	167	1
023	LOCATE: RANGE AND BEARING			83	6	83	6	83	6	83	6
026	IDENTIFY: NAME OR IDENTIFYING NUMBER			83	6	83	6	83	6	83	6

PROGRAM: SAR

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN E 1 WT.	SCEN E 1 RNK	SCEN E 2 WT.	SCEN E 2 RNK	SCEN E 3 WT.	SCEN E 3 RNK	SCEN E 4 WT.	SCEN E 4 RNK	SCEN E 5 WT.	SCEN E 5 RNK
022	LOCATE: RANGE OR BEARING	4	21	71	3	85	1	85	1	85	1
023	LOCATE: RANGE AND BEARING	145	1	66	1	74	2	74	2	74	2
025	LOCATE: GEOGRAPHICAL POSITION	145	1	66	1	74	2	74	2	74	2
020	DETECT: SOUND EMISSION IN WATER	44	7	57	5	61	4	61	4	61	4
029	IDENTIFY: TYPE	73	5	60	4	58	5	58	5	58	5
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	38	8	48	8	50	6	50	6	50	6
015	DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)	-26	24	32	17	45	7	45	7	45	7
018	DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ)	-26	24	32	17	45	7	45	7	45	7
019	DETECT: SOUND EMISSION IN AIR	-26	24	32	17	45	7	45	7	45	7
002	DETECT: LARGE VESSEL (150'+)	30	11	39	9	40	10	40	10	40	10
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	30	11	39	9	40	10	40	10	40	10
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	30	11	39	9	40	10	40	10	40	10
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	30	11	39	9	40	10	40	10	40	10
068	OBSERVE: NATURE OF DISTRESS: AFIRE	30	11	39	9	40	10	40	10	40	10
069	OBSERVE: NATURE OF DISTRESS: SINKING	30	11	39	9	40	10	40	10	40	10
070	OBSERVE: NATURE OF DISTRESS: AGROUND	30	11	39	9	40	10	40	10	40	10
009	DETECT: SMALL SUBMERGED SUBMERGIBLE, MINE, SUNKEN VESSEL	143	3	50	6	32	17	32	17	32	17
024	LOCATE: ALTITUDE OR DEPTH	143	3	50	6	32	17	32	17	32	17
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	37	9	30	20	29	19	29	19	29	19
067	OBSERVE: NATURE OF DISTRESS: DISABLED OR INJURED	51	6	32	16	28	20	28	20	28	20
032	IDENTIFY: FREQUENCY	-6	22	8	25	11	21	11	21	11	21
033	IDENTIFY: CHARACTERISTIC CODE	-6	22	8	25	11	21	11	21	11	21
030	IDENTIFY: COLOR	8	18	10	22	10	23	10	23	10	23
031	IDENTIFY: SHAPE	8	18	10	22	10	23	10	23	10	23
056	OBSERVE: SIZE OF OBJECT	8	18	10	22	10	23	10	23	10	23
071	OBSERVE: NATURE OF DISTRESS: SUNK	36	10	13	21	8	26	8	26	8	26

APPENDIX H

DETAILED SURVEILLANCE REQUIREMENTS IN RANK ORDER

KEY TO COLUMN HEADINGS

NO.	Unique identification number.
SN	Scene: 0 implies a current requirement. 6 implies a future requirement.
PROG	Coast Guard Operating Program abbreviation.
PA	Program Activity code.
Program Activity	Distinct surveillance-related operation.
Function	Surveillance function.
SIE	Surveillance Information Element code.
Surveillance Information Element	Self-explanatory.

Note: Requirements are listed in Scene 5 rank order.

023: LOCATE: RANGE AND BEARING

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
058	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	LOCATE	023	RANGE AND BEARING TO SMUGGLING VESSEL
094	0	MOMP	50	AAW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF AIRCRAFT/MISSILE
103	0	MOMP	51	ASUW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF VESSEL
109	0	MOMP	52	ASW SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF SUBMARINE
116	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF TARGET/AIMING POINT
205	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF THREATENING VESSELS
217	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	LOCATE	023	RANGE AND BEARING OF THREATENING/THREATENED VESSELS
225	0	PSS	79	VESSEL TRAFFIC SERVICES	LOCATE	023	RANGE AND BEARING TO VESSELS IN VTS SYSTEM
236	0	RBS	87	REGATTA SURVEILLANCE	LOCATE	023	RANGE AND BEARING OF INTRUDER
244	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	023	RANGE AND BEARING OF EMITTER
256	0	SAR	91	SURFACE SEARCH	LOCATE	023	RANGE AND BEARING OF SEARCH OBJECT
293	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	LOCATE	023	HORIZONTAL POSITION OF DEFECT IN THE STRUCTURE
300	6	CVS	13	OFFSHORE PLATFORM INSPECTION	LOCATE	023	HORIZONTAL POSITION OF DEFECT IN THE STRUCTURE
308	6	PSS	80	OFFSHORE ASSET PROTECTION	LOCATE	023	RANGE AND BEARING OF THREAT
319	6	SAR	92	UNDERWATER SEARCH	LOCATE	023	RANGE AND BEARING OF SUBMERSIBLE

004: DETECT: SMALL VESSEL (16' - 40'), METAL BUOY, VISIBLE OBJECT (BEACON), LARGE ICEBERG, AFLOAT SEAPLANE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
001	0	AN	1	BUOY SURVEILLANCE	DETECT	004	METAL BUOY
007	0	AN	2	BEACON SURVEILLANCE	DETECT	004	BEACON, VISUAL OR RADAR
046	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	004	SMALL VESSEL
057	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	004	SMALL VESSEL
102	0	MOMP	51	ASUW SURVEILLANCE	DETECT	004	SMALL VESSEL
115	0	MOMP	53	NGFS SURVEILLANCE	DETECT	004	LAND TARGET OR AIMING POINT
137	0	MSA	60	ICEBERG SURVEILLANCE	DETECT	004	LARGE ICEBERG
161	0	MSA	67	NATIONAL DATA BUOY PROGRAM	DETECT	004	DATA BUOY
202	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	004	SMALL THREATENING VESSELS
216	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	004	SMALL THREATENING/THREATENED VESSELS
234	0	RBS	87	REGATTA SURVEILLANCE	DETECT	004	SMALL PARTICIPATING/INTRUDING/ENDANGERED VESSELS
253	0	SAR	91	SURFACE SEARCH	DETECT	004	SMALL VESSEL, AFLOAT SEAPLANE
304	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	004	SMALL VESSEL

025: LOCATE: GEOGRAPHICAL POSITION

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
003	0	AN	1	BUOY SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF BUOY
033	0	ELT	20	FISHING VESSEL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF FISHING VESSEL
048	0	ELT	21	GEAR CONFLICT SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF VESSELS AND MARKERS
059	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF SMUGGLING VESSEL
071	0	IO	30	ICE SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF ICE FIELDS
077	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF ICE JAMS
082	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT
088	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT
118	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF TARGET/AIMING POINT
127	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION
139	0	MSA	60	ICEBERG SURVEILLANCE	LOCATE	025	GEOGRAPHIC POSITION
144	0	MSA	61	SEA TEMPERATURE SURVEYS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION
147	0	MSA	62	OCEAN SOUNDINGS PROGRAM	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION
148	0	MSA	63	STANDARD OCEANO. SECTIONS	LOCATE	025	GEOGRAPHICAL POSITION OF SECTION
151	0	MSA	64	BATHYTHERMOGRAPH OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION
154	0	MSA	65	TARBALL OBSERVATIONS	LOCATE	025	GEOGRAPHIC POSITION OF OBSERVATION
159	0	MSA	66	SURFACE CURRENT OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION
163	0	MSA	67	NATIONAL DATA BUOY PROGRAM	LOCATE	025	GEOGRAPHICAL POSITION OF BUOY
175	0	MSA	68	SURFACE WEATHER OBSERVATIONS	LOCATE	025	GEOGRAPHICAL POSITION OF OBSERVATION
189	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF SPECIAL INTEREST VESSEL
218	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	LOCATE	025	GEOGRAPHICAL POSITION OF SELECTED VESSEL
226	0	PSS	79	VESSEL TRAFFIC SERVICES	LOCATE	025	GEOGRAPHICAL POSITION OF VESSELS IN VTS SYSTEM
245	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	025	GEOGRAPHICAL POSITION OF EMITTER
257	0	SAR	91	SURFACE SEARCH	LOCATE	025	GEOGRAPHICAL POSITION OF SEARCH OBJECT
283	6	ELT	23	UNDERSEA MINING SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF MINING VESSEL OR FLOATING PLANT
297	6	CVS	15	UNDERSEA PIPELINE INSPECTION	LOCATE	025	GEOGRAPHICAL POSITION OF DEFECT
321	6	SAR	92	UNDERWATER SEARCH	LOCATE	025	GEOGRAPHICAL POSITION OF SUBMERSIBLE
329	0	MEP	42	INT'L POLLUTION SURVEILLANCE	LOCATE	025	GEOGRAPHICAL POSITION OF POLLUTANT

034: OBSERVE: STRUCTURAL INTEGRITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
185	0	PSS	75	FACILITY INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY OF FACILITY
292	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY
295	6	CVS	15	UNDERSEA PIPELINE INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY OF PIPELINE
299	6	CVS	13	OFFSHORE PLATFORM INSPECTION	OBSERVE	034	STRUCTURAL INTEGRITY

037: OBSERVE: MOVEMENT OF OBJECT OF INTEREST

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
037	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	037	FISHING VESSEL MOVEMENT
052	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	037	FISHING VESSEL MOVEMENT
063	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	037	SMUGGLING VESSEL MOVEMENT
073	0	IO	30	ICE SURVEILLANCE	OBSERVE	037	ICE MOVEMENT
078	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	037	ICE MOVEMENT
084	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT
090	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT
098	0	MOMP	50	AAW SURVEILLANCE	OBSERVE	037	MOVEMENT OF AIRCRAFT OR MISSILE
106	0	MOMP	51	ASUW SURVEILLANCE	OBSERVE	037	VESSEL MOVEMENT
113	0	MOMP	52	ASW SURVEILLANCE	OBSERVE	037	SUBMARINE MOVEMENT
121	0	MOMP	53	NGFS SURVEILLANCE	OBSERVE	037	TARGET MOVEMENT
129	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	037	FLOOD, FIRE, FALLOUT, GAS CLOUD MOVEMENT
140	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	037	ICEBERG MOVEMENT
149	0	MSA	63	STANDARD OCEANO. SECTIONS	OBSERVE	037	SURFACE CURRENT VELOCITY
160	0	MSA	66	SURFACE CURRENT OBSERVATIONS	OBSERVE	037	SURFACE CURRENT VELOCITY
176	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	037	MOVEMENT OF CLOUDS, SURFACE SWELLS
193	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	037	VESSEL MOVEMENT
210	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	037	MOVEMENT OF THREAT
221	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	OBSERVE	037	MOVEMENTS OF VESSELS INVOLVED
229	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	037	VESSEL MOVEMENTS
238	0	RBS	87	REGATTA SURVEILLANCE	OBSERVE	037	MOVEMENT OF PARTICIPATING/INTRUDING/ENDANGERED VESSELS AND SWIMMERS
250	0	SAR	90	ALERTING AND LOCATING SYSTEMS	OBSERVE	037	MOVEMENT OF CALLING UNIT
262	0	SAR	91	SURFACE SEARCH	OBSERVE	037	MOVEMENT OF SEARCH OBJECT
288	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	037	MOVEMENT OF MINING VESSEL OR FLOATING PLANT
313	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	037	MOVEMENT OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE/SWIMMER
324	6	SAR	92	UNDERWATER SEARCH	OBSERVE	037	MOVEMENT OF SUBMERSIBLE
331	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	037	MOVEMENT OF POLLUTANT

003: DETECT: MEDIUM SIZED VESSEL (40' - 150')

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
028	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSELS USING WATERWAY
032	0	ELT	20	FISHING VESSEL SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL
045	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL
056	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL
101	0	MOMP	51	ASUW SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL
187	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	003	MEDIUM-SIZED VESSEL
201	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	003	MEDIUM-SIZED THREATENING VESSELS
215	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	003	MEDIUM-SIZED THREATENING/THREATENED VESSELS
224	0	PSS	79	VESSEL TRAFFIC SERVICES	DETECT	003	MEDIUM-SIZED VESSEL IN VTS SYSTEM
233	0	RBS	87	REGATTA SURVEILLANCE	DETECT	003	MEDIUM-SIZED PARTICIPATING/INTRUDING/ENDANGERED VESSELS
252	0	SAR	91	SURFACE SEARCH	DETECT	003	MEDIUM-SIZED VESSEL
303	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	003	MEDIUM-SIZED VESSEL

002: DETECT: LARGE VESSEL (150' +)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
027	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	DETECT	002	LARGE VESSELS USING WATERWAY
031	0	ELT	20	FISHING VESSEL SURVEILLANCE	DETECT	002	LARGE VESSEL
044	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	002	LARGE VESSEL
055	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	DETECT	002	LARGE VESSEL
100	0	MOMP	51	ASUW SURVEILLANCE	DETECT	002	LARGE VESSEL
186	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	002	LARGE VESSEL
200	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	002	LARGE THREATENING VESSELS
214	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	DETECT	002	LARGE THREATENING/THREATENED VESSELS
223	0	PSS	79	VESSEL TRAFFIC SERVICES	DETECT	002	LARGE VESSEL IN VTS SYSTEM
251	0	SAR	91	SURFACE SEARCH	DETECT	002	LARGE VESSEL
280	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	002	LARGE MINING VESSEL OR FLOATING PLANT

029: IDENTIFY: TYPE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
036	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL; TYPE OF FISHING VESSEL
051	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL; TYPE OF FISHING VESSEL
062	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	029	VESSEL TYPE
072	0	IO	30	ICE SURVEILLANCE	IDENTIFY	029	TYPE OF ICE
083	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT
089	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT
097	0	MOMP	50	AAW SURVEILLANCE	IDENTIFY	029	TYPE OF AIRCRAFT OR MISSILE
105	0	MOMP	51	ASUW SURVEILLANCE	IDENTIFY	029	VESSEL TYPE OR CLASS
112	0	MOMP	52	ASW SURVEILLANCE	IDENTIFY	029	SUBMARINE TYPE OR CLASS
119	0	MOMP	53	NGFS SURVEILLANCE	IDENTIFY	029	TARGET TYPE
128	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	IDENTIFY	029	TYPE OF EXPLOSIVE OR CHEMICAL AGENT
192	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	029	TYPE OF VESSEL
209	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	029	TYPE OF THREAT
228	0	PSS	79	VESSEL TRAFFIC SERVICES	IDENTIFY	029	TYPES OF VESSELS IN VTS SYSTEM
247	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	029	TYPE OF EMITTER AND CALLING UNIT
259	0	SAR	91	SURFACE SEARCH	IDENTIFY	029	TYPE OF SEARCH OBJECT
267	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	029	TYPE OF MINING/MINING FACILITY
312	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	029	TYPE OF THREAT
323	6	SAR	92	UNDERWATER SEARCH	IDENTIFY	029	TYPE OF SUBMERSIBLE
330	0	MEP	42	INT'L POLLUTION SURVEILLANCE	IDENTIFY	029	TYPE OF POLLUTANT

047: OBSERVE: HAZARDOUS ACTIVITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
054	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY
130	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITIES OF VICTIMS OR MOBS
213	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY
222	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	OBSERVE	047	HAZARDOUS ACTIVITIES
231	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	047	HAZARDOUS ACTIVITIES OR MANEUVERS
239	0	RBS	87	REGATTA SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY
278	0	PSS	75	FACILITY INSPECTION	OBSERVE	047	HAZARDOUS CONDITIONS OR ACTIVITIES
290	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	047	HAZARDOUS ACTIVITY

024: LOCATE: ALTITUDE OR DEPTH

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
095	0	MOMP	50	AAW SURVEILLANCE	LOCATE	024	ALTITUDE OF AIRCRAFT/MISSILE
110	0	MOMP	52	ASW SURVEILLANCE	LOCATE	024	DEPTH OF SUBMARINE
117	0	MOMP	53	NGFS SURVEILLANCE	LOCATE	024	ALTITUDE OF TARGET/AIMING POINT
146	0	MSA	62	OCEAN SOUNDINGS PROGRAM	LOCATE	024	OBSERVED DEPTH
206	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	LOCATE	024	DEPTH OF SWIMMERS
284	6	ELT	23	UNDERSEA MINING SURVEILLANCE	LOCATE	024	DEPTH CHANGES RESULTING FROM MINING
294	6	CVS	14	UNDERSEA STRUCTURE INSPECTION	LOCATE	024	VERTICAL POSITION OF DEFECT IN THE STRUCTURE
301	6	CVS	13	OFFSHORE PLATFORM INSPECTION	LOCATE	024	VERTICAL POSITION OF DEFECT IN THE STRUCTURE
309	6	PSS	80	OFFSHORE ASSET PROTECTION	LOCATE	024	DEPTH OF SWIMMER/SUBMERSIBLE
320	6	SAR	92	UNDERWATER SEARCH	LOCATE	024	DEPTH OF SUBMERSIBLE

026: IDENTIFY: NAME OR IDENTIFYING NUMBER

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
004	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	026	NUMBER OF BUOY
008	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	026	NUMBER OF BEACON
034	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF FISHING VESSEL
049	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	026	FISHING VESSEL NAME OR NUMBER; MARKER NUMBER
060	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF SMUGGLING VESSEL
164	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	026	BUOY NUMBER
190	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF SPECIAL INTEREST VESSEL
207	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	026	VESSEL NAME OR NUMBER
219	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	IDENTIFY	026	NAME OR NUMBER OF VESSELS INVOLVED
227	0	PSS	79	VESSEL TRAFFIC SERVICES	IDENTIFY	026	NAMES OR NUMBERS OF VESSELS IN VTS SYSTEM
237	0	RBS	87	REGATTA SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF INTRUDING/ENDANGERED VESSEL
246	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	026	NAME OR NUMBER OF CALLING UNIT
258	0	SAR	91	SURFACE SEARCH	IDENTIFY	026	NAME OR NUMBER OF SEARCH OBJECT
285	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	026	NAME OR NUMBER OF MINING VESSEL OR FLOATING PLANT
310	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	026	NAME OR NUMBER OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE
322	6	SAR	92	UNDERWATER SEARCH	IDENTIFY	026	NAME OR NUMBER OF SUBMERSIBLE

THIS PAGE IS BEST QUALITY PRACTICABLE
FROM COPY FURNISHED TO DDC

005: DETECT: MAN IN WATER, NON-METALLIC BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
002	0	AN	2	BUOY SURVEILLANCE	DETECT	005	NON-METALLIC BUOY
047	0	ELT	21	GEAR CONFLICT SURVEILLANCE	DETECT	005	FISH TRAP MARKER
138	0	MSA	60	ICEBERG SURVEILLANCE	DETECT	005	GROWLER
203	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	005	PERSONNEL THREATS: SURFACE
235	0	RBS	87	REGATTA SURVEILLANCE	DETECT	005	ENDANGERED SWIMMERS
254	0	SAR	91	SURFACE SEARCH	DETECT	005	MAN IN WATER, DITCHED AIRCRAFT
305	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	005	SURFACE SWIMMER

046: OBSERVE: HOSTILE ACTIVITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
099	0	MOMP	50	AAW SURVEILLANCE	OBSERVE	046	HOSTILE AIRCRAFT ACTIVITY
107	0	MOMP	51	ASUW SURVEILLANCE	OBSERVE	046	HOSTILE VESSEL ACTIVITY
114	0	MOMP	52	ASW SURVEILLANCE	OBSERVE	046	HOSTILE SUBMARINE ACTIVITY
122	0	MOMP	53	MGFS SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY OF TARGET
196	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY
212	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	046	HOSTILE ACTIVITY
315	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	046	HOSTILE AIRCRAFT/VESSEL/SUBMERSIBLE ACTIVITY

033: IDENTIFY: CHARACTERISTIC CODE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
015	0	AN	3	SURVEILLANCE OF LIGHTS	IDENTIFY	033	LIGHT CHARACTERISTIC
021	0	AN	4	RADIO BEACON SURVEILLANCE	IDENTIFY	033	CHARACTERISTIC CODE OF RADIO BEACON SIGNAL
024	0	AN	5	FOG SIGNAL SURVEILLANCE	IDENTIFY	033	CHARACTERISTIC CODE OF FOG SIGNAL
166	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	033	CHARACTERISTIC OF DATA BUOY TELEMETRY SIGNAL
249	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	033	CHARACTERISTIC CODE OF ALERTING/LOCATING SIGNAL

013: DETECT: LIQUID POLLUTANT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
081	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANT
087	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANT
298	6	CVS	15	UNDERSEA PIPELINE INSPECTION	DETECT	013	LIQUID LEAKAGE FROM PIPELINE
328	0	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	013	LIQUID POLLUTANTS

019: DETECT: SOUND EMISSION IN AIR

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
023	0	AN	5	FOG SIGNAL SURVEILLANCE	DETECT	019	FOG SIGNAL
242	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	019	SOUND EMISSIONS FROM ALERTING/LOCATING DEVICE
341	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	019	ALERTING/LOCATING AIRBORNE SOUND EMISSIONS

030: IDENTIFY: COLOR

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
005	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	030	COLOR OF BUOY
009	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	030	COLOR OF BEACON
014	0	AN	3	SURVEILLANCE OF LIGHTS	IDENTIFY	030	COLOR OF LIGHT
260	0	SAR	91	SURFACE SEARCH	IDENTIFY	030	COLOR OF SEARCH OBJECT

018: DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THz) (0.75-0.4 micron)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
013	0	AN	3	SURVEILLANCE OF LIGHTS	DETECT	018	MAJOR OR MINOR LIGHT OR LIGHTED BUOY
241	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	018	LIGHT EMISSIONS FROM ALERTING/LOCATING DEVICE
340	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	018	ALERTING/LOCATING LIGHT EMISSIONS

022: LOCATE: RANGE OR BEARING

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
029	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	LOCATE	022	BRIDGE-TO-VESSEL RANGE
243	0	SAR	90	ALERTING AND LOCATING SYSTEMS	LOCATE	022	RANGE OR BEARING OF EMITTER
255	0	SAR	91	SURFACE SEARCH	LOCATE	022	RANGE OR BEARING OF SEARCH OBJECT
296	6	CVS	15	UNDERSEA PIPELINE INSPECTION	LOCATE	022	HORIZONTAL POSITION OF DEFECT IN THE PIPELINE

038: OBSERVE: TRANSMISSION TIME SCHEDULE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
018	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF LIGHT EMISSIONS
022	0	AN	4	RADIO BEACON SURVEILLANCE	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF RADIO BEACON SIGNAL
026	0	AN	5	FOG SIGNAL SURVEILLANCE	OBSERVE	038	TRANSMISSION TIME SCHEDULE OF FOG SIGNAL
168	0	MSA	67	NATIONAL DATA BUOY PROGRAM	OBSERVE	038	DATA BUOY TRANSMISSION TIME SCHEDULE

021: DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
126	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	021	NUCLEAR RADIATION
288	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	DETECT	021	NUCLEAR RADIATION
270	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION
275	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION
334	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	021	NUCLEAR RADIATION

008: DETECT: DIVER (UNDERWATER SWIMMER)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
294	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	DETECT	006	PERSONNEL THREATS: SUBSURFACE
306	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	006	UNDERWATER SWIMMER

015: DETECT: ELECTROMAGNETIC EMISSION: RADIO (10kHz - 30 GHz)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
019	0	AN	4	RADIO BEACON SURVEILLANCE	DETECT	015	RADIO BEACON SIGNAL
162	0	MSA	67	NATIONAL DATA BUOY PROGRAM	DETECT	015	BUOY TELEMETRY TRANSMISSION
240	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	015	RADIO TRANSMISSIONS FROM ALERTING/LOCATING DEVICE
339	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	015	ALERTING/LOCATING RADIO TRANSMISSIONS

027: IDENTIFY: FLAG (US OR FOREIGN)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
035	0	ELT	20	FISHING VESSEL SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF FISHING VESSEL
050	0	ELT	21	GEAR CONFLICT SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF FISHING VESSEL
061	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF SMUGGLING VESSEL
191	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF SPECIAL INTEREST VESSEL
208	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	IDENTIFY	027	NATIONALITY (FLAG) OF VESSEL
220	0	PSS	78	CONTROL SELECTED VESSEL MVMTS	IDENTIFY	027	NATIONALITIES (FLAGS) OF VESSELS INVOLVED
266	6	ELT	23	UNDERSEA MINING SURVEILLANCE	IDENTIFY	027	NATIONALITY OF MINING VESSEL OR FLOATING PLANT
311	6	PSS	80	OFFSHORE ASSET PROTECTION	IDENTIFY	027	NATIONALITY OF THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE

042: OBSERVE: SUSPICIOUS ACTIVITY: HOVERING

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
064	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY (HOVERING)
194	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY (HOVERING)
211	0	PSS	77	PORT AND WATERWAY SURVEILLANCE	OBSERVE	042	SUSPICIOUS ACTIVITY
314	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	042	SUSPICIOUS AIRCRAFT/VESSEL/SUBMERSIBLE ACTIVITY

035: OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
011	0	AN	2	BEACON SURVEILLANCE	OBSERVE	035	VISIBLE OR RADAR DETECTION RANGE OF BEACON
016	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	035	VISIBLE RANGE OF LIGHT
025	0	AN	5	FOG SIGNAL SURVEILLANCE	OBSERVE	035	AUDIBLE RANGE OF FOG SIGNAL
120	0	MOMP	53	NGFS SURVEILLANCE	OBSERVE	035	FALL OF SHOT

007: DETECT: SOLID POLLUTANT, TARBALL

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
153	0	MSA	65	TARBALL OBSERVATIONS	DETECT	007	TARBALLS
268	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS
273	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS
281	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	007	SOLID POLLUTANT/EFFLUENT
327	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	007	SOLID POLLUTANTS

001: DETECT: AIRBORNE AIRCRAFT, MISSILE, AIRSHIP

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
093	0	MOMP	50	AAW SURVEILLANCE	DETECT	001	AIRCRAFT, MISSILE
302	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	001	APPROACHING AIRCRAFT

028: IDENTIFY: FRIEND OR FOE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
096	0	MOMP	50	AAW SURVEILLANCE	IDENTIFY	028	CHARACTER OF AIRCRAFT (FRIEND OR FOE)
104	0	MOMP	51	ASUW SURVEILLANCE	IDENTIFY	028	VESSEL CHARACTER (FRIEND OR FOE)
111	0	MOMP	52	ASW SURVEILLANCE	IDENTIFY	028	SUBMARINE CHARACTER (FRIEND OR FOE)

009: DETECT: SMALL SUBMERGED SUBMERSIBLE, MINE, SUNKEN VESSEL

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
307	6	PSS	80	OFFSHORE ASSET PROTECTION	DETECT	009	SMALL SUBMERGED SUBMERSIBLE
317	6	SAR	92	UNDERWATER SEARCH	DETECT	009	SMALL SUBMERGED SUBMERSIBLE OR SUNKEN VESSEL

057: OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
075	0	IO	30	ICE SURVEILLANCE	OBSERVE	057	AREA COVERED BY ICE
080	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	057	AREA COVERED BY ICE
086	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT
092	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT
132	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	057	AREA AFFECTED BY DISASTER
142	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	057	ICEBERG HAZARD AREA
157	0	MSA	65	TABBALL OBSERVATIONS	OBSERVE	057	SIZE OF AREA IN WHICH TARBALLS FOUND
177	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	057	CLOUD COVERAGE (PERCENT)
291	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	057	AREA COVERED BY EFFLUENT
333	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	057	AREA COVERED BY POLLUTANT

053: OBSERVE: CONTRABAND: WEAPONS AND MUNITIONS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
068	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	053	CONTRABAND (WEAPONS AND MUNITIONS)
198	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	053	CONTRABAND: WEAPONS AND MUNITIONS
316	6	PSS	80	OFFSHORE ASSET PROTECTION	OBSERVE	053	WEAPONS/MUNITIONS CARRIED BY THREATENING AIRCRAFT/VESSEL/SUBMERSIBLE

014: DETECT: GASEOUS POLLUTANT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
124	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	014	GASEOUS CHEMICAL AGENT
269	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS
274	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS
335	6	MEP	42	INT'L POLLUTION SURVEILLANCE	DETECT	014	GASEOUS POLLUTANTS

020: DETECT: SOUND EMISSION IN WATER

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
279	0	SAR	90	ALERTING AND LOCATING SYSTEMS	DETECT	020	ALERTING/LOCATING WATERBORNE SOUND EMISSIONS
318	6	SAR	92	UNDERWATER SEARCH	DETECT	020	SOUND EMISSION IN WATER

031: IDENTIFY: SHAPE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
006	0	AN	1	BUOY SURVEILLANCE	IDENTIFY	031	SHAPE OF BUOY
010	0	AN	2	BEACON SURVEILLANCE	IDENTIFY	031	SHAPE OF BEACON
261	0	SAR	91	SURFACE SEARCH	IDENTIFY	031	SHAPE (APPEARANCE) OF SEARCH OBJECT

036: OBSERVE: VISIBILITY ARCS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
012	0	AN	2	BEACON SURVEILLANCE	OBSERVE	036	VISIBILITY ARCS OF BEACON, IF APPLICABLE
017	0	AN	3	SURVEILLANCE OF LIGHTS	OBSERVE	036	VISIBILITY ARCS OF LIGHT

060: OBSERVE: PROFILES: DEPTH vs TEMPERATURE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
152	0	MSA	64	BATHYTHERMOGRAPH OBSERVATIONS	OBSERVE	060	PRESSURE (DEPTH) VERSUS TEMPERATURE PROFILE
271	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES
276	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES
336	6	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	060	ENVIRONMENTAL SEA TEMPERATURE CHANGES

056: OBSERVE: SIZE OF OBJECT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
133	0	NOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	056	SIZE OF NUCLEAR BURST, EXPLOSION, ETC.
141	0	MSA	60	ICEBERG SURVEILLANCE	OBSERVE	056	SIZE OF ICEBERG
156	0	MSA	65	TARBALL OBSERVATIONS	OBSERVE	056	SIZE OF TARBALLS
232	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	056	SIZES OF VESSELS IN VTS SYSTEM
263	0	SAR	91	SURFACE SEARCH	OBSERVE	056	SIZE OF SEARCH OBJECT

061: OBSERVE: PROFILES: DEPTH vs SALINITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
272	6	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES
277	6	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES
337	6	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	061	ENVIRONMENTAL SALINITY CHANGES

068: OBSERVE: NATURE OF DISTRESS: AFIRE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
135	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	068	NATURE OF DISTRESS: FIRE OR EXPLOSION
265	0	SAR	91	SURFACE SEARCH	OBSERVE	068	NATURE OF DISTRESS: AFIRE

069: OBSERVE: NATURE OF DISTRESS: SINKING

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
136	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	069	NATURE OF DISTRESS: FLOODING
266	0	SAR	91	SURFACE SEARCH	OBSERVE	069	NATURE OF DISTRESS: SINKING

070: OBSERVE: NATURE OF DISTRESS: AGROUND

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
267	0	SAR	91	SURFACE SEARCH	OBSERVE	070	NATURE OF DISTRESS: AGROUND

006: DETECT: ICE FIELD, ICE JAM

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
070	0	IO	30	ICE SURVEILLANCE	DETECT	006	ICE FIELDS
076	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	DETECT	006	ICE JAMS

055: OBSERVE: ICE THICKNESS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
074	0	IO	30	ICE SURVEILLANCE	OBSERVE	055	ICE THICKNESS
079	0	IO	31	FLOOD (ICE JAM) SURVEILLANCE	OBSERVE	055	ICE THICKNESS

010: DETECT: LARGE SUBMERGED SUBMARINE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
108	0	MOMP	52	ASW SURVEILLANCE	DETECT	010	LARGE SUBMERGED SUBMARINE

045: OBSERVE: SUSPICIOUS ACTIVITY: DISCHARGING POLLUTANT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
085	0	MEP	40	COASTAL POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT
091	0	MEP	41	HARBOR POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT
289	6	ELT	23	UNDERSEA MINING SURVEILLANCE	OBSERVE	045	SUSPICIOUS ACTIVITY (DISCHARGING POLLUTANTS)
332	0	MEP	42	INT'L POLLUTION SURVEILLANCE	OBSERVE	045	APPARENT SOURCE OF POLLUTANT

032: IDENTIFY: FREQUENCY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
020	0	AN	4	RADIO BEACON SURVEILLANCE	IDENTIFY	032	FREQUENCY OF RADIO BEACON SIGNAL
165	0	MSA	67	NATIONAL DATA BUOY PROGRAM	IDENTIFY	032	DATA BUOY RADIO TRANSMISSION FREQUENCY
248	0	SAR	90	ALERTING AND LOCATING SYSTEMS	IDENTIFY	032	FREQUENCY OF ALERTING/LOCATING RADIO SIGNAL

043: OBSERVE: SUSPICIOUS ACTIVITY: TRANSFERRING CARGO

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
065	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	043	SUSPICIOUS ACTIVITY (TRANSFERRING CARGO)
195	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	043	SUSPICIOUS ACTIVITY (TRANSFERRING CARGO)
338	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	043	SUSPICIOUS ACTIVITY (TRANSFERRING CARGO)

067: OBSERVE: NATURE OF DISTRESS: DISABLED OR INJURED

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
134	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	067	NATURE OF DISTRESS: DAMAGE AND INJURIES
264	0	SAR	91	SURFACE SEARCH	OBSERVE	067	NATURE OF DISTRESS: DISABLED OR INJURED
325	6	SAR	92	UNDERWATER SEARCH	OBSERVE	067	NATURE OF DISTRESS: DISABLED

051: OBSERVE: CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
197	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	051	CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES

054: OBSERVE: ILLEGAL ALIENS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
069	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	054	ILLEGAL ALIENS
199	0	PSS	76	SPECIAL VESSEL SURVEILLANCE	OBSERVE	054	ILLEGAL ALIENS

039: OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
030	0	BA	10	BRIDGE TRAFFIC SURVEILLANCE	OBSERVE	039	NUMBER OF TRANSITING VESSELS PER UNIT TIME
155	0	MSA	65	TARBALL OBSERVATIONS	OBSERVE	039	NUMBER OF TARBALLS
230	0	PSS	79	VESSEL TRAFFIC SERVICES	OBSERVE	039	NUMBER OF VESSELS PER TIME INTERVAL

052: OBSERVE: CONTRABAND: DRUGS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
067	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	052	CONTRABAND (DRUGS)

017: DETECT: ELECTROMAGNETIC EMISSION: INFRARED (1-400 THz) (300-0.75 micron)

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
125	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	017	HEAT FROM FIRES AND EXPLOSIONS
143	0	MSA	61	SEA TEMPERATURE SURVEYS	DETECT	017	SURFACE SEA TEMPERATURE

071: OBSERVE: NATURE OF DISTRESS: SUNK

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
326	6	SAR	92	UNDERWATER SEARCH	OBSERVE	071	NATURE OF DISTRESS: SUNK

040: OBSERVE: FISHING ACTIVITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
038	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	040	FISHING ACTIVITY (GEAR AND TECHNIQUE)
053	0	ELT	21	GEAR CONFLICT SURVEILLANCE	OBSERVE	040	FISHING ACTIVITY (GEAR AND TECHNIQUE)

044: OBSERVE: SUSPICIOUS ACTIVITY: FLEEING

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
040	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	044	SUSPICIOUS ACTIVITY (FLEEING)
066	0	ELT	22	ANTI-SMUGGLING SURVEILLANCE	OBSERVE	044	SUSPICIOUS ACTIVITY (FLEEING)

048: OBSERVE: FISH CATCH: SPECIES

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
041	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	048	SPECIES OF FISH CAUGHT

049: OBSERVE: FISH CATCH: . FISH SIZE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
042	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	049	SIZE OF FISH CAUGHT

050: OBSERVE: FISH CATCH: QUANTITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
043	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	050	QUANTITY OF FISH CAUGHT

012: DETECT: SEA SURFACE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
123	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	DETECT	012	FLOODED TERRAIN
150	0	MSA	63	STANDARD OCEANO. SECTIONS	DETECT	012	SEA SURFACE
158	0	MSA	66	SURFACE CURRENT OBSERVATIONS	DETECT	012	SEA SURFACE

011: DETECT: SEA BOTTOM

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
145	0	MSA	62	OCEAN SOUNDINGS PROGRAM	DETECT	011	SEA BOTTOM
282	6	ELT	23	UNDERSEA MINING SURVEILLANCE	DETECT	011	SEA BOTTOM

041: OBSERVE: FISHERY SUPPORT OPERATIONS

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
039	0	ELT	20	FISHING VESSEL SURVEILLANCE	OBSERVE	041	FISHERY SUPPORT OPERATIONS

063: OBSERVE: SURFACE WEATHER: PRESSURE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
181	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	063	ATMOSPHERIC PRESSURE

066: OBSERVE: WIND VELOCITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
133	0	MOMP	54	DISASTER CONTROL SURVEILLANCE	OBSERVE	066	WIND VELOCITY
184	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	066	SURFACE WIND VELOCITY

058: OBSERVE: SEAS AND SWELLS: HEIGHT

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
178	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	058	HEIGHT OF SEAS AND SWELLS

059: OBSERVE: SEAS AND SWELLS: PERIOD

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
179	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	059	PERIOD OF SEAS AND SWELLS

062: OBSERVE: SURFACE WEATHER: TEMPERATURE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
180	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	062	SURFACE WEATHER: TEMPERATURE

064: OBSERVE: SURFACE WEATHER: HUMIDITY

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
182	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	064	SURFACE WEATHER: HUMIDITY

065: OBSERVE: CLOUD TYPE

NO.	SN	PROG	PA	PROGRAM ACTIVITY	FUNCTION	SIE	SURVEILLANCE INFORMATION ELEMENT
183	0	MSA	68	SURFACE WEATHER OBSERVATIONS	OBSERVE	065	CLOUD TYPES

APPENDIX I

SURVEILLANCE REQUIREMENTS MODEL: SENSITIVITY ANALYSIS

Having obtained outputs from the model (Tables 7-2 and 7-3), it is desirable to test their sensitivity to changes in input data. Specifically, how sensitive are surveillance requirements (Function/SIE weights and ranks) to changes in event timing (i.e., changes in the introductory scene for each event)? Referring to the results of the Delphi conference (Appendix D), the distribution of responses for a number of events is seen to be bimodal at some probability levels; instead of accepting a middle position between modes, the cumulative distribution function could have been altered to reflect first one mode and then the other. This could affect the trigger dates, hence the introductory scenes implied. However, significant bimodality is only observed in a handful of cases and even where it exists, changes in the implied scene would be small and rare. Consequently, this procedure would not provide a robust sensitivity test.

As a better alternative, the effect of changes in the trigger dates has been investigated. The model has again been exercised for all events using introductory scenes implied by trigger dates corresponding to both probability levels equal to or less than 0.3 and probability levels equal to or less than 0.7 (as distinguished from probability levels equal to or less than 0.5 used in the second iteration). The results of these two runs are given in Table I-1, where it will be seen that the greatest change in requirement weight/rank occurs in the first scene. Table I-2 summarizes the ranks for each SIE for each cumulative probability level. The maximum difference in rank is also tabulated. After excluding incomplete data sets, a chi square test for normality has been applied; these 52 data sets yield a chi square of 4.78 (with 2 degrees of freedom), indicating that normality cannot be rejected at the 98% confidence

level. Confidence limits may therefore be set about the mean (6.1); rank changes from 2 to 10 may be expected at an 80 percent confidence level. Small rank changes imply relative indifference to event timing; conversely, those requirements which undergo rank changes of 10 or more are most sensitive to event timing. These relatively sensitive requirements are listed in Table I-3. More complete requirement descriptions may be found in Appendix H; underlying events which cause these rank changes may be traced in Appendix F.

It may be seen that the maximum rank differences are not great, implying that SIE ranks do not change radically with changes in event timing. For this reason, the results of the Second Iteration of the Requirements Model (Table 7-2) have been accepted as a basis for further analysis in this study.

TABLE I-1 SENSITIVITY ANALYSIS RESULTS

KEY TO COLUMN HEADINGS

SIE	Surveillance Information Element code (See Table 3-2).
Surveillance Function and SIE Description	Self-explanatory.
WT.	Relative weight (normalized to 1000) of the SIE in the scene (5-year period) indicated.
RNK	Rank. The relative importance of the SIE in the scene indicated.

NOTES

1. Scenes are defined as follows:

SCENE	TIME PERIOD
1	1980-1984
2	1985-1989
3	1990-1994
4	1995-1999
5	2000-2004

2. Results based on scenes implied by event probabilities ≤ 0.3 are given in the first part of the table; event probabilities ≤ 0.7 are used to produce the second part.

3. SIE weights (non-normalized) are cumulative from scene to scene, e.g., SIE weights in Scene 2 include weights for Scene 1.

PART 1. RESULTS FOR SCENES IMPLIED BY EVENT PROBABILITIES $\leq$ 0.3

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
025	LOCATE: GEOGRAPHICAL POSITION	82	1	68	3	67	3	67	3	67	3
034	OBSERVE: STRUCTURAL INTEGRITY	81	2	56	4	59	4	58	4	58	4
023	LOCATE: RANGE AND BEARING	73	3	82	1	79	1	79	1	79	1
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	62	4	76	2	75	2	75	2	75	2
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	51	5	55	5	54	5	55	5	55	5
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	47	6	53	6	53	6	53	6	53	6
029	IDENTIFY: TYPE	42	7	43	8	44	8	44	8	44	8
002	DETECT: LARGE VESSEL (150'+)	41	8	47	7	46	7	47	7	47	7
024	LOCATE: ALTITUDE OR DEPTH	39	9	32	10	32	10	31	10	31	10
047	OBSERVE: HAZARDOUS ACTIVITY	35	10	37	9	40	9	41	9	41	9
013	DETECT: LIQUID POLLUTANT	35	11	22	15	23	15	23	15	23	15
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	30	12	31	11	30	11	31	11	31	11
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	30	13	29	13	30	12	30	12	30	12
046	OBSERVE: HOSTILE ACTIVITY	21	14	30	12	30	13	30	13	30	13
030	IDENTIFY: COLOR	20	15	19	17	19	17	19	17	19	17
033	IDENTIFY: CHARACTERISTIC CODE	19	16	24	14	24	14	23	14	23	14
021	DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS	18	17	13	22	14	21	14	21	14	21
018	DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ)	17	18	18	18	18	18	18	18	18	18
007	DETECT: SOLID POLLUTANT, TARBALL	16	19	11	28	12	27	12	27	12	27
022	LOCATE: RANGE OR BEARING	15	20	16	19	15	19	15	19	15	19
008	DETECT: DIVER (UNDERWATER SWIMMER)	13	21	12	25	13	22	13	22	13	22
042	OBSERVE: SUSPICIOUS ACTIVITY: HOVERING	13	22	12	26	13	24	13	25	13	25
038	OBSERVE: TRANSMISSION TIME SCHEDULE	13	23	14	20	14	20	14	20	14	20
019	DETECT: SOUND EMISSION IN AIR	13	24	19	16	20	16	20	16	20	16
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST	13	25	8	30	8	31	8	31	8	31
027	IDENTIFY: FLAG (U.S. OR FOREIGN)	12	26	12	24	13	26	13	24	13	24
035	OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE	10	27	13	23	13	25	13	26	13	26
009	DETECT: SMALL SUBMERGED SUBMERSIBLE, MINE, SUNKEN VESSEL	10	28	8	31	9	30	9	30	9	30
014	DETECT: GASEOUS POLLUTANT	10	29	7	34	7	33	7	33	7	33
015	DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)	9	30	14	21	13	23	13	23	13	23
053	OBSERVE: CONTRABAND: WEAPONS AND MUNITIONS	8	31	7	32	8	32	8	32	8	32
006	DETECT: ICE FIELD, ICE JAM	8	32	4	43	4	43	4	43	4	43
055	OBSERVE: ICE THICKNESS	8	32	4	43	4	43	4	43	4	43
060	OBSERVE: PROFILES: DEPTH VS TEMPERATURE	7	34	5	38	5	37	5	37	5	37
061	OBSERVE: PROFILES: DEPTH VS SALINITY	7	35	5	42	5	39	5	39	5	39
056	OBSERVE: SIZE OF OBJECT	6	36	5	37	5	38	5	38	5	38
036	OBSERVE: VISIBILITY ARCS	5	37	6	36	5	36	5	36	5	36
031	IDENTIFY: SHAPE	5	38	6	35	6	35	6	35	6	35
045	OBSERVE: SUSPICIOUS ACTIVITY: DISCHARGING POLLUTANT	5	39	3	48	4	46	4	46	4	46
020	DETECT: SOUND EMISSION IN WATER	5	40	7	33	7	34	6	34	6	34

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
001	DETECT: AIRBORNE AIRCRAFT, MISSILE, AIRSHIP	5	41	10	29	10	28	10	28	10	28
068	OBSERVE: NATURE OF DISTRESS: AFIRE	3	42	5	39	4	40	4	40	4	40
069	OBSERVE: NATURE OF DISTRESS: SINKING	3	42	5	39	4	40	4	40	4	40
070	OBSERVE: NATURE OF DISTRESS: AGROUND	3	42	5	39	4	40	4	40	4	40
043	OBSERVE: SUSPICIOUS ACTIVITY: TRANSFERRING CARGO	3	45	4	46	3	48	3	48	3	48
054	OBSERVE: ILLEGAL ALIENS	3	46	3	51	3	51	3	51	3	51
039	OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL	3	47	2	52	2	52	2	52	2	52
028	IDENTIFY: FRIEND OR FOE	3	48	11	27	10	29	10	29	10	29
067	OBSERVE: NATURE OF DISTRESS: DISABLED OR INJURED	3	49	3	49	3	49	3	49	3	49
017	DETECT: ELECTROMAGNETIC EMISSION: HEAT (1-400 THZ)	2	50	1	54	1	54	1	54	1	54
051	OBSERVE: CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES	2	51	3	50	3	50	3	50	3	50
032	IDENTIFY: FREQUENCY	2	52	4	47	3	47	3	47	3	47
052	OBSERVE: CONTRABAND: DRUGS	2	53	1	53	1	53	1	53	1	53
071	OBSERVE: NATURE OF DISTRESS: SUNK	1	54	1	55	1	55	1	55	1	55
044	OBSERVE: SUSPICIOUS ACTIVITY: FLEEING	1	55	1	57	1	57	1	57	1	57
012	DETECT: SEA SURFACE	1	56	0	61	0	61	0	61	0	61
011	DETECT: SEA BOTTOM	1	57	0	62	0	62	0	62	0	62
040	OBSERVE: FISHING ACTIVITY	1	58	1	56	1	56	1	56	1	56
063	OBSERVE: SURFACE WEATHER: PRESSURE	0	59	0	64	0	64	0	64	0	64
066	OBSERVE: WIND VELOCITY	0	59	0	64	0	64	0	64	0	64
058	OBSERVE: SEAS AND SWELLS: HEIGHT	0	61	0	66	0	66	0	66	0	66
059	OBSERVE: SEAS AND SWELLS: PERIOD	0	61	0	66	0	66	0	66	0	66
062	OBSERVE: SURFACE WEATHER: TEMPERATURE	0	61	0	66	0	66	0	66	0	66
064	OBSERVE: SURFACE WEATHER: HUMIDITY	0	61	0	66	0	66	0	66	0	66
065	OBSERVE: CLOUD TYPE	0	65	0	70	0	70	0	70	0	70
041	OBSERVE: FISHERY SUPPORT OPERATIONS	0	66	0	63	0	63	0	63	0	63
048	OBSERVE: FISH CATCH: SPECIES	0	67	1	58	0	58	0	58	0	58
049	OBSERVE: FISH CATCH: FISH SIZE	0	67	1	58	0	58	0	58	0	58
050	OBSERVE: FISH CATCH: QUANTITY	0	67	1	58	0	58	0	58	0	58

PART 2. RESULTS FOR SCENES IMPLIED BY EVENT PROBABILITIES $\leq$ 0.7

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN WT.	E 1 RNK	SCEN WT.	E 2 RNK	SCEN WT.	E 3 RNK	SCEN WT.	E 4 RNK	SCEN WT.	E 5 RNK
034	OBSERVE: STRUCTURAL INTEGRITY	107	1	106	1	62	4	59	4	58	4
025	LOCATE: GEOGRAPHICAL POSITION	86	2	89	2	69	3	67	3	67	3
013	DETECT: LIQUID POLLUTANT	67	3	44	6	25	14	23	15	23	15
023	LOCATE: RANGE AND BEARING	63	4	71	3	80	1	79	1	79	1
037	OBSERVE: MOVEMENT OF OBJECT OF INTEREST	49	5	52	4	55	5	54	5	55	5
003	DETECT: MEDIUM SIZED VESSEL (40'-150')	42	6	42	7	51	6	53	6	53	6
024	LOCATE: ALTITUDE OR DEPTH	41	7	49	5	35	10	32	10	31	10
002	DETECT: LARGE VESSEL (150'+)	39	8	35	11	46	7	46	7	47	7
029	IDENTIFY: TYPE	33	9	39	9	43	8	44	8	44	8
047	OBSERVE: HAZARDOUS ACTIVITY	33	10	38	10	37	9	40	9	41	9
004	DETECT: SMALL VESSEL(16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE	32	11	41	8	70	2	75	2	75	2
026	IDENTIFY: NAME OR IDENTIFYING NUMBER	27	12	29	12	30	11	30	11	31	11
033	IDENTIFY: CHARACTERISTIC CODE	27	13	17	17	23	15	24	14	23	14
021	DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS	26	14	19	15	14	21	14	21	14	21
022	LOCATE: RANGE OR BEARING	26	15	15	18	15	19	15	19	15	19
019	DETECT: SOUND EMISSION IN AIR	24	16	13	24	18	17	20	16	20	16
007	DETECT: SOLID POLLUTANT, TARBALL	22	17	20	14	12	26	12	27	12	27
005	DETECT:SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT	18	18	28	13	29	12	30	12	30	12
038	OBSERVE: TRANSMISSION TIME SCHEDULE	17	19	12	27	14	20	14	20	14	20
030	IDENTIFY: COLOR	16	20	18	16	19	16	19	17	19	17
018	DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ)	16	21	14	21	18	18	18	16	18	18
014	DETECT: GASEOUS POLLUTANT	14	22	11	28	7	33	7	33	7	33
027	IDENTIFY: FLAG (U.S. OR FOREIGN)	13	23	12	26	12	23	13	26	13	24
046	OBSERVE: HOSTILE ACTIVITY	12	24	15	20	29	13	30	13	30	13
057	OBSERVE: AREA COVERED BY OBJECT(S) OF INTEREST	11	25	15	19	9	30	8	31	8	31
009	DETECT: SMALL SUBMERGED SUBMERSIBLE, MINE, SUNKEN VESSEL	11	26	13	22	8	31	9	30	9	30
042	OBSERVE: SUSPICIOUS ACTIVITY: HOVERING	10	27	13	25	12	25	13	24	13	25
060	OBSERVE: PROFILES: DEPTH VS TEMPERATURE	10	28	9	30	5	37	5	37	5	37
061	OBSERVE: PROFILES: DEPTH VS SALINITY	10	28	8	33	5	39	5	39	5	39
015	DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)	10	30	4	39	13	22	13	23	13	23
035	OBSERVE: AUDIBLE/VISIBLE/RADAR RANGE	9	31	7	35	12	27	13	25	13	26
008	DETECT: DIVER (UNDERWATER SWIMMER)	8	32	13	23	12	24	13	22	13	22
045	OBSERVE: SUSPICIOUS ACTIVITY: DISCHARGING POLLUTANT	7	33	6	36	4	46	4	46	4	46
056	OBSERVE: SIZE OF OBJECT	7	34	7	34	5	38	5	38	5	38
020	DETECT: SOUND EMISSION IN WATER	6	35	4	38	6	34	7	34	6	34
053	OBSERVE: CONTRABAND: WEAPONS AND MUNITIONS	6	36	10	29	7	32	8	32	8	32
043	OBSERVE: SUSPICIOUS ACTIVITY: TRANSFERRING CARGO	5	37	3	45	3	47	3	48	3	48
051	OBSERVE: CONTRABAND: CHEMICAL, BIOLOGICAL, RADIOLOGICAL DEVICES	5	38	2	52	3	51	3	50	3	50
054	OBSERVE: ILLEGAL ALIENS	4	39	4	42	3	50	3	51	3	51
036	OBSERVE: VISIBILITY ARCS	4	40	4	40	5	36	5	36	5	36

SIE	SURVEILLANCE FUNCTION AND SIE DESCRIPTION	SCEN E 1 WT.	E 1 RNK	SCEN E 2 WT.	E 2 RNK	SCEN E 3 WT.	E 3 RNK	SCEN E 4 WT.	E 4 RNK	SCEN E 5 WT.	E 5 RNK
067	OBSERVE: NATURE OF DISTRESS: DISABLED OR INJURED	4	41	3	47	3	49	3	49	3	49
039	OBSERVE: NUMBER OF OBJECTS PER TIME INTERVAL	3	42	4	41	2	52	2	52	2	52
071	OBSERVE: NATURE OF DISTRESS: SUNK	2	43	2	51	1	56	1	55	1	55
032	IDENTIFY: FREQUENCY	2	44	1	55	3	48	3	47	3	47
068	OBSERVE: NATURE OF DISTRESS: AFIRE	2	45	2	48	4	43	4	40	4	40
069	OBSERVE: NATURE OF DISTRESS: SINKING	2	45	2	48	4	43	4	40	4	40
070	OBSERVE: NATURE OF DISTRESS: AGROUND	2	45	2	48	4	43	4	40	4	40
031	IDENTIFY: SHAPE	2	48	4	43	6	35	6	35	6	35
052	OBSERVE: CONTRABAND: DRUGS	2	49	3	46	2	53	1	53	1	53
001	DETECT: AIRBORNE AIRCRAFT, MISSILE, AIRSHIP	2	50	6	37	11	29	10	28	10	28
043	OBSERVE: FISHING ACTIVITY	1	51	1	57	1	55	1	56	1	56
044	OBSERVE: SUSPICIOUS ACTIVITY: FLEEING	1	52	1	54	1	57	1	57	1	57

TABLE I-2. SENSITIVITY ANALYSIS OF SCENE 1 SIE RANKS

SIE	Probability Level 0.3	0.5	0.7	Max.Rank Difference
001	41	34	50	16
002	8	10	8	2
003	6	6	6	0
004	4	5	11	7
005	13	13	18	5
006	32	36	--	--
007	19	16	17	3
008	21	20	32	12
009	28	19	26	9
010	--	--	--	--
011	57	--	--	--
012	56	--	--	--
013	11	7	3	8
014	29	28	22	7
015	30	46	30	16
016	--	--	--	--
017	50	44	--	--
018	18	22	21	4
019	24	24	16	8
020	40	47	35	12
021	17	14	14	3
022	20	27	15	12
023	3	3	4	1
024	9	8	7	2
025	1	1	2	1
026	48	--	--	--
027	26	26	23	3
028	48	--	--	--
029	7	9	9	2
030	15	15	20	5
031	38	41	48	10
032	52	54	44	10
033	16	17	13	4
034	2	2	1	1
035	27	30	31	4
036	37	39	40	3
037	5	4	5	1
038	23	23	19	4
039	47	43	42	5
040	58	55	51	7
041	66	56	--	--
042	22	21	27	6
043	45	40	37	8
044	55	53	52	3
045	39	35	33	6
046	14	18	24	10
047	10	11	10	1
048	67	57	--	--
049	67	57	--	--
050	67	57	--	--
051	51	48	38	13
052	53	42	49	11
053	31	29	36	7
054	46	38	39	8
055	32	36	--	--
056	36	33	34	3
057	25	25	25	0
058	61	--	--	--
059	61	--	--	--
060	34	31	28	6
061	35	31	28	7
062	61	--	--	--
063	59	--	--	--
064	61	--	--	--
065	65	--	--	--
066	59	--	--	--
067	49	45	41	8
068	42	50	45	8
069	42	50	45	8
070	42	50	45	8
071	54	49	43	11

STATISTICS

Number of Observations:	52
Mean:	6.13
Standard Deviation:	4.09

CHI SQUARE TEST FOR NORMAL DISTRIBUTION

Chi Square	4.78
Degrees of Freedom	2

TABLE I-3. SURVEILLANCE REQUIREMENTS MOST SENSITIVE TO EVENT TIMING

Maximum Rank Difference	SIE Code	SIE Description
16	001	Detect: Airborne Aircraft, Missile, Airship
16	015	Detect: Electromagnetic Emission: Radio (10 kHz - 30 GHz)
13	051	Observe: Contraband: Chemical, Biological, Radiological Devices
12	008	Detect: Diver (Underwater Swimmer)
12	020	Detect: Sound Emission in Air
12	022	Locate: Range or Bearing
11	052	Observe: Contraband: Drugs
11	071	Observe: Nature of Distress: Sunk
10	031	Identify: Shape
10	032	Identify: Freqeuncy
10	046	Observe: Hostile Activity

APPENDIX J

DIGESTS OF SURVEILLANCE TECHNOLOGIES (U)

CLASSIFIED. CONTAINED IN VOLUME 3.

APPENDIX K

SURVEILLANCE TECHNOLOGIES: SUPPLEMENTARY CONSIDERATIONS (U)

CLASSIFIED. CONTAINED IN VOLUME 3.

APPENDIX L

EMERGING SURVEILLANCE SYSTEMS (U)

CLASSIFIED. CONTAINED IN VOLUME 3.

APPENDIX M

SURVEILLANCE TECHNOLOGIES MODEL

CROSS-RELEVANCE MATRICES: TECHNOLOGIES vs REQUIREMENTS

Potential Technologies vs Requirements, Scene 1	M-2 to M-3
Applied Technologies vs Requirements, Scene 1	M-4 to M-5
Potential Technologies vs Requirements, Scene 5	M-6 to M-7
Applied Technologies vs Requirements, Scene 5	M-8 to M-9

CROSS-RELEVANCE MATRIX: POTENTIAL TECHNOLOGIES vs REQUIREMENTS, SCENE 1

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	023	004	034	037	003	002	029	047	024	026	005	046	033
		91	65	115	75	65	53	55	47	57	44	40	24	28
1 AIR ACOUSTICS	78	2	1	0	2	2	2	1	0	0	0	0	1	8
		14196	5070	0	11700	10140	8268	4290	0	0	0	0	1872	17472
2 SONAR, PASSIVE	19	2	2	0	2	8	8	4	0	1	0	0	8	0
		3458	2470	0	2850	9880	8056	4180	0	1083	0	0	3648	0
3 SONAR, ACTIVE	39	4	4	2	8	4	4	2	4	8	0	4	8	0
		14196	10140	8970	23400	10140	8268	4290	7332	17784	0	6240	7488	0
4 MAGNETIC FIELD	39	1	1	0	1	4	8	0	0	0	0	0	0	0
		3549	2535	0	2925	10140	16536	0	0	0	0	0	0	0
5 RADIO FREQUENCY	78	2	8	0	2	8	8	2	0	0	0	0	2	8
		14196	40560	0	11700	40560	33072	8580	0	0	0	0	3744	17472
6 ELECTROMAGNETIC FIELD	39	2	8	0	2	8	8	4	0	0	0	0	4	8
		7098	20280	0	5850	20280	16536	8580	0	0	0	0	3744	8736
7 RADAR, OVER-THE-HORIZON	10	2	0	0	1	2	4	0	0	0	0	0	2	0
		1820	0	0	750	1300	2120	0	0	0	0	0	480	0
8 RADAR, MEDIUM RANGE	39	8	8	0	8	8	8	4	4	8	0	2	8	0
		28392	20280	0	23400	20280	16536	8580	7332	17784	0	3120	7488	0
9 RADAR, MILLIMETER	19	8	8	0	8	8	8	8	4	8	0	8	8	0
		13832	9880	0	11400	9880	8056	8360	3572	8664	0	6080	3648	0
10 INFRARED	39	2	4	0	4	8	8	4	1	2	0	4	4	0
		7098	10140	0	11700	20280	16536	8580	1833	4446	0	6240	3744	0
11 TELEVISION	78	2	8	4	8	8	8	8	8	2	8	8	8	8
		14196	40560	35880	46800	40560	33072	34320	29328	8892	27456	24960	14976	17472
12 OPTICAL	78	8	8	4	8	8	8	8	8	4	8	8	8	8
		56784	40560	35880	46800	40560	33072	34320	29328	17784	27456	24960	14976	17472
13 PHOTOGRAPHY	78	2	8	4	8	8	8	8	4	2	8	8	4	0
		14196	40560	35880	46800	40560	33072	34320	14664	8892	27456	24960	7488	0
14 IMAGE INTENSIFICATION	39	2	8	4	8	8	8	4	2	2	4	8	2	8
		7098	20280	17940	23400	20280	16536	8580	3666	4446	6864	12480	1872	8736
15 LASER, BLUE-GREEN	19	8	8	0	8	8	8	0	0	8	0	8	8	0
		13832	9880	0	11400	9880	8056	0	0	8664	0	6080	3648	0
16 LASER, OTHER	19	8	8	0	8	8	8	0	1	8	0	8	8	0
		13832	9880	0	11400	9880	8056	0	893	8664	0	6080	3648	0
17 ULTRAVIOLET	78	2	1	0	2	2	2	2	0	0	0	0	0	0
		14196	5070	0	11700	10140	8268	8580	0	0	0	0	0	0
18 NUCLEAR	78	1	0	1	0	0	0	0	0	0	0	0	0	0
		7098	0	8970	0	0	0	0	0	0	0	0	0	0
19 CHEMICAL	78	0	0	0	1	0	0	2	0	0	0	0	0	0
		0	0	0	5850	0	0	8580	0	0	0	0	0	0
20 ANIMAL (BIRD)	19	2	0	0	8	4	8	0	0	2	0	4	8	2
		3458	0	0	11400	4940	8056	0	0	2166	0	3040	3648	1064
21 ACOUSTIC EMISSION	19	8	0	8	0	0	0	0	8	8	0	0	0	0
		13832	0	17480	0	0	0	0	7144	8664	0	0	0	0
22 MECHANICAL VIBRATION	19	4	0	8	0	0	0	0	8	4	0	0	0	0
		6916	0	17480	0	0	0	0	7144	4332	0	0	0	0
TOTAL	1001	273273	288145	178480	321225	329680	282172	184140	112236	122265	89232	124240	86112	88424
NORMAL		89	93	58	104	107	92	60	36	40	29	40	28	29
RANK		5	3	8	2	1	4	7	11	9	13	9	15	13

8 — CELL VALUE
17480 — CELL PRODUCT

CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

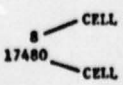
SIE SURVEILLANCE FUNCTION AND SIE DESCRIPTION

023 LOCATE: RANGE AND BEARING
004 DETECT: SMALL VESSEL (16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE
025 LOCATE: GEOGRAPHICAL POSITION
034 OBSERVE: STRUCTURAL INTEGRITY
037 OBSERVE: MOVEMENT OF OBJECT OF INTEREST
003 DETECT: MEDIUM SIZED VESSEL (40'-150')
002 DETECT: LARGE VESSEL (150'+)
029 IDENTIFY: TYPE
047 OBSERVE: HAZARDOUS ACTIVITY
024 LOCATE: ALTITUDE OR DEPTH
026 IDENTIFY: NAME OR IDENTIFYING NUMBER
005 DETECT: SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT
046 OBSERVE: HOSTILE ACTIVITY
033 IDENTIFY: CHARACTERISTIC CODE

CROSS-RELEVANCE MATRIX: POTENTIAL TECHNOLOGIES VS REQUIREMENTS, SCENE 1

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	013 64	019 19	030 28	018 19	022 18	038 19	021 12	008 21	015 4	027 18	TOTAL 1001	NORMAL	RANK
1 AIR ACOUSTICS	78	0 0	8 11856	0 0	0 0	8 11232	8 11856	0 0	0 0	0 0	0 0	107952	35	9
2 SONAR, PASSIVE	19	0 0	0 0	0 0	0 0	8 2736	0 0	0 0	2 798	0 0	1 342	39501	13	18
3 SONAR, ACTIVE	39	0 0	0 0	0 0	0 0	8 5616	0 0	0 0	4 3276	0 0	0 0	127140	41	7
4 MAGNETIC FIELD	39	0 0	0 0	0 0	0 0	1 702	0 0	0 0	0 0	0 0	0 0	36387	12	19
5 RADIO FREQUENCY	78	0 0	8 11856	0 0	0 0	4 5616	8 11856	0 0	0 0	8 2496	1 1404	203142	66	4
6 ELECTROMAGNETIC FIELD	39	0 0	0 0	0 0	0 0	4 2808	8 5928	0 0	0 0	8 1248	0 0	101088	33	10
7 RADAR, OVER-THE-HORIZON	10	0 0	0 0	0 0	0 0	2 360	0 0	0 0	0 0	0 0	0 0	6830	2	22
8 RADAR, MEDIUM RANGE	39	8 19968	0 0	0 0	0 0	8 5616	0 0	0 0	0 0	0 0	0 0	178776	58	6
9 RADAR, MILLIMETER	19	8 9728	0 0	0 0	0 0	8 2736	0 0	0 0	0 0	0 0	0 0	95836	31	12
10 INFRARED	39	8 19968	0 0	1 1092	2 1482	8 5616	0 0	0 0	2 1638	0 0	1 702	121095	39	8
11 TELEVISION	78	8 39936	0 0	4 8736	8 11856	8 11232	8 11856	0 0	1 1638	0 0	8 11232	464958	151	2
12 OPTICAL	78	8 39936	0 0	8 17472	8 11856	8 11232	8 11856	0 0	1 1638	0 0	8 11232	525174	170	1
13 PHOTOGRAPHY	78	8 39936	0 0	8 17472	2 2964	8 11232	0 0	0 0	1 1638	0 0	8 11232	413322	134	3
14 IMAGE INTENSIFICATION	39	4 9984	0 0	0 0	8 5928	8 5616	8 5928	0 0	1 819	0 0	4 2808	183261	59	5
15 LASER, BLUE-GREEN	19	0 0	0 0	0 0	0 0	8 2736	0 0	0 0	4 1596	0 0	0 0	75772	25	13
16 LASER, OTHER	19	0 0	0 0	0 0	0 0	8 2736	0 0	0 0	0 0	0 0	0 0	75069	24	14
17 ULTRAVIOLET	78	8 39936	0 0	1 2184	0 0	2 2808	0 0	0 0	0 0	0 0	0 0	102882	33	10
18 NUCLEAR	78	0 0	0 0	0 0	0 0	1 1404	0 0	8 19968	0 0	0 0	0 0	37440	12	19
19 CHEMICAL	78	8 39936	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	54366	18	15
20 ANIMAL (BIRD)	19	2 2432	0 0	8 4256	8 2888	8 2736	0 0	0 0	0 0	0 0	0 0	50084	16	16
21 ACOUSTIC EMISSION	19	0 0	0 0	0 0	0 0	2 684	0 0	0 0	0 0	0 0	0 0	47804	16	16
22 MECHANICAL VIBRATION	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	35872	12	19
TOTAL 1001		261760	23712	51212	36974	95454	59280	19968	13041	3744	38952	3083721	1000	
NORMAL		85	8	17	12	31	19	6	4	1	13		1001	
RANK		6	20	17	19	12	16	21	22	23	18			



CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

013 DETECT: LIQUID POLLUTANT
019 DETECT: SOUND EMISSION IN AIR
030 IDENTIFY: COLOR
018 DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ) (0.75-0.4 MICRON)
022 LOCATE: RANGE OR BEARING
038 OBSERVE: TRANSMISSION TIME SCHEDULE
021 DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS
008 DETECT: DIVER (UNDERWATER SWIMMER)
015 DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)
027 IDENTIFY: FLAG (U.S. OR FOREIGN)

CROSS-RELEVANCE MATRIX: APPLIED TECHNOLOGIES vs REQUIREMENTS, SCENE I

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	023	004	034	037	003	002	029	047	024	026	005	046	033
		91	65	115	75	65	53	55	47	57	44	40	24	28
1 AIR ACOUSTICS	78	1 7098	0 0	0 0	1 5850	0 0	1 4134	1 4290	0 0	0 0	0 0	0 0	0 0	8 17472
2 SONAR, PASSIVE	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
3 SONAR, ACTIVE	39	4 14196	4 10140	0 0	8 23400	2 5070	2 4134	1 2145	0 0	8 17784	0 0	1 1560	8 7488	0 0
4 MAGNETIC FIELD	39	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
5 RADIO FREQUENCY	78	2 14196	1 5070	0 0	2 11700	2 10140	2 8268	1 4290	0 0	0 0	0 0	0 0	0 0	8 17472
6 ELECTROMAGNETIC FIELD	39	0 0	4 10140	0 0	1 2925	8 20280	8 16536	2 4290	0 0	0 0	0 0	0 0	4 3744	4 4368
7 RADAR, OVER-THE-HORIZON	10	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
8 RADAR, MEDIUM RANGE	39	8 28392	4 10140	0 0	8 23400	8 20280	8 16536	4 8580	0 0	0 0	0 0	2 3120	8 7488	0 0
9 RADAR, MILLIMETER	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
10 INFRARED	39	0 0	0 0	0 0	4 11700	8 20280	8 16536	2 4290	0 0	0 0	0 0	4 6240	2 1872	0 0
11 TELEVISION	78	2 14196	0 0	0 0	8 46800	8 40560	8 33072	8 34320	4 14664	0 0	8 27456	4 12480	8 14976	8 17472
12 OPTICAL	78	4 28392	8 40560	4 35880	8 46800	8 40560	8 33072	8 34320	8 29328	2 8892	8 27456	4 12480	8 14976	8 17472
13 PHOTOGRAPHY	78	0 0	0 0	0 0	4 23400	8 40560	8 33072	8 34320	2 7332	0 0	8 27456	4 12480	2 3744	0 0
14 IMAGE INTENSIFICATION	39	0 0	4 10140	0 0	4 11700	8 20280	8 16536	4 8580	1 1833	0 0	2 3432	4 6240	1 936	8 8736
15 LASER, BLUE-GREEN	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
16 LASER, OTHER	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
17 ULTRAVIOLET	78	0 0	0 0	0 0	4 23400	0 0	2 8268	1 4290	0 0	0 0	0 0	0 0	0 0	0 0
18 NUCLEAR	78	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
19 CHEMICAL	78	0 0	0 0	0 0	0 0	0 0	0 0	2 8580	0 0	0 0	0 0	0 0	0 0	0 0
20 ANIMAL (BIRD)	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
21 ACOUSTIC EMISSION	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
22 MECHANICAL VIBRATION	19	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL	1001	106470	86190	35880	231075	218010	190164	152295	53157	26676	85800	54600	55224	82992
NORMAL		58	47	19	125	118	103	83	29	14	47	30	30	45
RANK		6	7	16	1	2	4	5	13	18	7	11	11	9

8 — CELL VALUE
17480 — CELL PRODUCT

CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

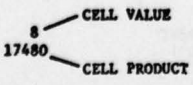
SIE SURVEILLANCE FUNCTION AND SIE DESCRIPTION

023 LOCATE: RANGE AND BEARING
004 DETECT: SMALL VESSEL (16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE
025 LOCATE: GEOGRAPHICAL POSITION
034 OBSERVE: STRUCTURAL INTEGRITY
037 OBSERVE: MOVEMENT OF OBJECT OF INTEREST
003 DETECT: MEDIUM SIZED VESSEL (40'-150')
002 DETECT: LARGE VESSEL (150'+)
029 IDENTIFY: TYPE
047 OBSERVE: HAZARDOUS ACTIVITY
024 LOCATE: ALTITUDE OR DEPTH
026 IDENTIFY: NAME OR IDENTIFYING NUMBER
005 DETECT: SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT
046 OBSERVE: HOSTILE ACTIVITY
033 IDENTIFY: CHARACTERISTIC CODE

CROSS-RELEVANCE MATRIX: APPLIED TECHNOLOGIES vs REQUIREMENTS, SCENE 1

REQUIREMENTS, (SIEs)

TECHNOLOGY	WT	013	019	030	018	022	038	021	008	015	027	TOTAL	NORMAL	RANK
		64	19	28	19	18	19	32	21	4	18	1001		
1 AIR ACOUSTICS	78	0	8	0	0	2	8	0	0	0	0			
		0	11856	0	0	2808	11856	0	0	0	0	65364	35	11
2 SONAR, PASSIVE	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
3 SONAR, ACTIVE	39	0	0	0	0	2	0	0	2	0	0			
		0	0	0	0	1404	0	0	1638	0	0	88959	48	7
4 MAGNETIC FIELD	39	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
5 RADIO FREQUENCY	78	0	0	0	0	4	0	0	0	8	0			
		0	0	0	0	5616	0	0	0	2496	0	79248	43	8
6 ELECTROMAGNETIC FIELD	39	0	0	0	0	4	4	0	0	8	0			
		0	0	0	0	2808	2964	0	0	1248	0	69303	38	10
7 RADAR, OVER-THE-HORIZON	10	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
8 RADAR, MEDIUM RANGE	39	8	0	0	0	8	0	0	0	0	0			
		9968	0	0	0	5616	0	0	0	0	0	143520	78	4
9 RADAR, MILLIMETER	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
10 INFRARED	39	8	0	0	2	8	8	0	0	0	0			
		19968	0	0	1482	5616	5928	0	0	0	0	93912	51	6
11 TELEVISION	78	8	0	2	4	8	8	0	0	0	8			
		39936	0	4368	5928	11232	11856	0	0	0	11232	340548	185	2
12 OPTICAL	78	8	0	8	8	8	8	0	1	0	8			
		39936	0	17472	11856	11232	11856	0	1638	0	11232	475410	258	1
13 PHOTOGRAPHY	78	8	0	8	1	8	0	0	1	0	8			
		39936	0	17472	1482	11232	0	0	1638	0	11232	265356	144	3
14 IMAGE INTENSIFICATION	39	4	0	0	4	8	8	0	0	0	2			
		9984	0	0	2964	5616	5928	0	0	0	1404	114309	62	5
15 LASER, BLUE-GREEN	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
16 LASER, OTHER	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
17 ULTRAVIOLET	78	8	0	0	0	1	0	0	0	0	0			
		39936	0	0	0	1404	0	0	0	0	0	77298	42	9
18 NUCLEAR	78	0	0	0	0	0	0	8	0	0	0			
		0	0	0	0	0	0	19968	0	0	0	19968	11	12
19 CHEMICAL	78	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	8580	5	13
20 ANIMAL (BIRD)	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
21 ACOUSTIC EMISSION	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
22 MECHANICAL VIBRATION	19	0	0	0	0	0	0	0	0	0	0			
		0	0	0	0	0	0	0	0	0	0	0	0	14
TOTAL 1001		209664	11856	39312	23712	64584	50388	19968	4914	3744	35100	1841775	1000	
NORMAL		114	6	21	13	35	27	11	3	2	19		999	
RANK		3	21	15	19	10	14	20	22	23	16			



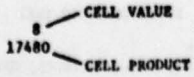
CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

013 DETECT: LIQUID POLLUTANT
019 DETECT: SOUND EMISSION IN AIR
030 IDENTIFY: COLOR
018 DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ) (0.75-0.4 MICRON)
022 LOCATE: RANGE OR BEARING
038 OBSERVE: TRANSMISSION TIME SCHEDULE
021 DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS
008 DETECT: DIVER (UNDERWATER SWIMMER)
015 DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)
027 IDENTIFY: FLAG (U.S. OR FOREIGN)

CROSS-RELEVANCE MATRIX: POTENTIAL TECHNOLOGIES VS REQUIREMENTS, SCENE 5

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	023	004	034	037	003	002	029	047	024	026	005	046	033
		104	99	76	72	70	62	58	54	41	41	40	40	30
1 AIR ACOUSTICS	70	2 14560	1 6930	0 0	2 10080	2 9800	2 8680	1 4060	0 0	0 0	0 0	0 0	1 2800	8 16800
2 SONAR, PASSIVE	35	2 7280	2 6930	0 0	2 5040	8 19600	8 17360	4 8120	0 0	1 1435	0 0	0 0	8 11200	0 0
3 SONAR, ACTIVE	35	4 14560	4 13860	2 5320	8 20160	4 9800	4 8680	2 4060	4 7560	8 11480	0 0	4 5600	8 11200	0 0
4 MAGNETIC FIELD	35	1 3640	1 3465	0 0	1 2520	4 9800	8 17360	0 0	0 0	0 0	0 0	0 0	0 0	0 0
5 RADIO FREQUENCY	70	2 14560	8 55440	0 0	2 10080	8 39200	8 34720	2 8120	0 0	0 0	0 0	0 0	2 5600	8 16800
6 ELECTROMAGNETIC FIELD	35	2 7280	8 27720	0 0	2 5040	8 19600	8 17360	4 8120	0 0	0 0	0 0	0 0	4 5600	8 8400
7 RADAR, OVER-THE-HORIZON	18	2 3744	0 0	0 0	1 1296	2 2520	4 4464	0 0	0 0	0 0	0 0	0 0	2 1440	0 0
8 RADAR, MEDIUM RANGE	35	8 29120	8 27720	0 0	8 20160	8 19600	8 17360	4 8120	4 7560	8 11480	0 0	2 2800	8 11200	0 0
9 RADAR, MILLIMETER	35	8 29120	8 27720	0 0	8 20160	8 19600	8 17360	8 16240	4 7560	8 11480	0 0	8 11200	8 11200	0 0
10 INFRARED	35	2 7280	4 13860	0 0	4 10080	8 19600	8 17360	4 8120	1 1890	2 2870	0 0	4 5600	4 5600	0 0
11 TELEVISION	70	2 14560	8 55440	4 21280	8 40320	8 39200	8 34720	8 32480	8 30240	2 5740	8 22960	8 22400	8 22400	8 16800
12 OPTICAL	70	8 58240	8 55440	4 21280	8 40320	8 39200	8 34720	8 32480	8 30240	4 11480	8 22960	8 22400	8 22400	8 16800
13 PHOTOGRAPHY	70	2 14560	8 55440	4 21280	8 40320	8 39200	8 34720	8 32480	4 15120	2 5740	8 22960	8 22400	4 11200	0 0
14 IMAGE INTENSIFICATION	35	2 7280	8 27720	4 10640	8 20160	8 19600	8 17360	4 8120	2 3780	2 2870	4 5740	8 11200	2 2800	8 8400
15 LASER, BLUE-GREEN	18	8 14976	8 14256	0 0	8 10368	8 10080	8 8928	0 0	0 0	8 5904	0 0	8 5760	8 5760	0 0
16 LASER, OTHER	18	8 14976	8 14256	0 0	8 10368	8 10080	8 8928	0 0	1 972	8 5904	0 0	8 5760	8 5760	0 0
17 ULTRAVIOLET	70	2 14560	1 6930	0 0	2 10080	2 9800	2 8680	2 8120	0 0	0 0	0 0	0 0	0 0	0 0
18 NUCLEAR	70	1 7280	0 0	1 5320	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
19 CHEMICAL	70	0 0	0 0	0 0	1 5040	0 0	0 0	2 8120	0 0	0 0	0 0	0 0	0 0	0 0
20 ANIMAL (BIRD)	35	2 7280	0 0	0 0	8 20160	4 9800	8 17360	0 0	0 0	2 2870	0 0	4 5600	8 11200	2 2100
21 ACOUSTIC EMISSION	35	8 29120	0 0	8 21280	0 0	0 0	0 0	0 0	8 15120	8 11480	0 0	0 0	0 0	0 0
22 MECHANICAL VIBRATION	35	4 4560	0 0	8 21280	0 0	0 0	0 0	0 0	8 15120	4 5740	0 0	0 0	0 0	0 0
TOTAL	999	328536	413127	127680	301752	346080	326120	186760	135162	96473	74620	120720	147360	86100
NORMAL		104	131	41	96	110	104	59	4	31	24	38	47	27
RANK		3	1	9	5	2	1	6	8	13	15	10	7	14



CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

SIE SURVEILLANCE FUNCTION AND SIE DESCRIPTION

023 LOCATE: RANGE AND BEARING
004 DETECT: SMALL VESSEL (16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE
025 LOCATE: GEOGRAPHICAL POSITION
034 OBSERVE: STRUCTURAL INTEGRITY
037 OBSERVE: MOVEMENT OF OBJECT OF INTEREST
003 DETECT: MEDIUM SIZED VESSEL (40'-150')
002 DETECT: LARGE VESSEL (150'+)
029 IDENTIFY: TYPE
047 OBSERVE: HAZARDOUS ACTIVITY
024 LOCATE: ALTITUDE OR DEPTH
026 IDENTIFY: NAME OR IDENTIFYING NUMBER
005 DETECT: SWIMMER, NON METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT
046 OBSERVE: HOSTILE ACTIVITY
033 IDENTIFY: CHARACTERISTIC CODE

CROSS RELEVANCE MATRIX: POTENTIAL TECHNOLOGIES VS REQUIREMENTS, SCENE 3

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	013	019	030	018	022	038	021	008	015	027	TOTAL	NORMAL	RANK
		10	26	25	24	20	18	18	17	17	17	999		
1 AIR ACOUSTICS	70	0 0	8 14560	0 0	0 0	8 11200	8 10080	0 0	0 0	0 0	0 0	109550	35	9
2 SONAR, PASSIVE	15	0 0	0 0	0 0	0 0	8 5600	0 0	0 0	2 1190	0 0	1 595	84350	27	13
3 SONAR, ACTIVE	35	0 0	0 0	0 0	0 0	8 5600	0 0	0 0	4 2380	0 0	0 0	120260	38	8
4 MAGNETIC FIELD	35	0 0	0 0	0 0	0 0	1 700	0 0	0 0	0 0	0 0	0 0	37485	12	19
5 RADIO FREQUENCY	70	0 0	8 14560	0 0	0 0	4 5600	8 10080	0 0	0 0	8 9520	1 1190	225470	72	4
6 ELECTROMAGNETIC FIELD	35	0 0	0 0	0 0	0 0	4 2800	8 5040	0 0	0 0	8 4760	0 0	111720	35	9
7 RADAR, OVER-THE-HORIZON	18	0 0	0 0	0 0	0 0	2 720	0 0	0 0	0 0	0 0	0 0	14184	5	22
8 RADAR, MEDIUM RANGE	35	8 8400	0 0	0 0	0 0	8 5600	0 0	0 0	0 0	0 0	0 0	169120	54	6
9 RADAR, MILLIMETER	35	8 8400	0 0	0 0	0 0	8 5600	0 0	0 0	0 0	0 0	0 0	185640	59	5
10 INFRARED	35	8 8400	0 0	1 875	2 1680	8 5600	0 0	0 0	2 1190	0 0	1 595	110600	35	9
11 TELEVISION	70	8 16800	0 0	4 7000	8 13440	8 11200	8 10080	0 0	1 1190	0 0	8 9520	427770	136	2
12 OPTICAL	70	8 16800	0 0	8 14000	8 13440	8 11200	8 10080	0 0	1 1190	0 0	8 9520	484190	154	1
13 PHOTOGRAPHY	70	8 16800	0 0	8 14000	2 3360	8 11200	0 0	0 0	1 1190	0 0	8 9520	371490	118	3
14 IMAGE INTENSIFICATION	35	4 4200	0 0	0 0	8 6720	8 5600	8 5040	0 0	1 595	0 0	4 2380	170205	54	6
15 LASER, BLUE-GREEN	18	0 0	0 0	0 0	0 0	8 2880	0 0	0 0	4 1224	0 0	0 0	80136	25	14
16 LASER, OTHER	18	0 0	0 0	0 0	0 0	8 2880	0 0	0 0	0 0	0 0	0 0	79884	25	14
17 ULTRAVIOLET	70	8 16800	0 0	1 1750	0 0	2 2800	0 0	0 0	0 0	0 0	0 0	79520	25	14
18 NUCLEAR	70	0 0	0 0	0 0	0 0	1 1400	0 0	8 10080	0 0	0 0	0 0	24080	8	21
19 CHEMICAL	70	8 16800	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	29960	10	20
20 ANIMAL (BIRD)	35	2 2100	0 0	8 7000	8 6720	8 5600	0 0	0 0	0 0	0 0	0 0	97790	31	12
21 ACOUSTIC EMISSION	35	0 0	0 0	0 0	0 0	2 1400	0 0	0 0	0 0	0 0	0 0	78400	25	14
22 MECHANICAL VIBRATION	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	56700	18	18
TOTAL	999	115500	29120	44625	45360	105180	50400	10080	10149	14280	33320	3148504	1001	
NORMAL		37	9	14	14	33	16	3	3	5	11		1000	
RANK		11	20	17	17	12	16	22	22	21	19			

8 ← CELL VALUE

17480 ← CELL PRODUCT

CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

013 DETECT: LIQUID POLLUTANT
019 DETECT: SOUND EMISSION IN AIR
030 IDENTIFY: COLOR
018 DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ) (0.75-0.4 MICRON)
022 LOCATE: RANGE OR BEARING
038 OBSERVE: TRANSMISSION TIME SCHEDULE
021 DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS
008 DETECT: DIVER (UNDERWATER SWIMMER)
015 DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)
027 IDENTIFY: FLAG (U.S. OR FOREIGN)

CROSS-RELEVANCE MATRIX: APPLIED TECHNOLOGIES vs REQUIREMENTS, SCENE 5

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	023	004	034	037	003	002	029	047	024	026	005	046	033
		104	99	76	72	70	62	58	54	41	41	40	40	10
1 AIR ACOUSTICS	70	1	0	0	1	0	1	1	0	0	0	0	0	8
		7280	0	0	5040	0	4340	4060	0	0	0	0	0	16800
2 SONAR, PASSIVE	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
3 SONAR, ACTIVE	35	4	4	0	8	2	2	1	0	8	0	1	8	0
		14560	13860	0	20160	4900	4340	2030	0	11480	0	1400	11200	0
4 MAGNETIC FIELD	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
5 RADIO FREQUENCY	70	2	1	0	2	2	2	1	0	0	0	0	0	8
		14560	6930	0	10080	9800	8680	4060	0	0	0	0	0	16800
6 ELECTROMAGNETIC FIELD	35	0	4	0	1	8	8	2	0	0	0	0	4	4
		0	13860	0	2520	19600	17360	4060	0	0	0	0	5600	4200
7 RADAR, OVER-THE-HORIZON	18	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
8 RADAR, MEDIUM RANGE	35	8	4	0	8	8	8	4	0	0	0	2	8	0
		29120	13860	0	20160	19600	17360	8120	0	0	0	2800	11200	0
9 RADAR, MILLIMETER	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
10 INFRARED	35	0	0	0	4	8	8	2	0	0	0	4	2	0
		0	0	0	10080	19600	17360	4060	0	0	0	5600	2800	0
11 TELEVISION	70	2	0	0	8	8	8	8	4	0	8	4	8	8
		14560	0	0	40320	39200	34720	32480	15120	0	22960	11200	22400	16800
12 OPTICAL	70	4	8	4	8	8	8	8	8	2	8	4	8	8
		29120	55440	21280	40320	39200	34720	32480	30240	5740	22960	11200	22400	16800
13 PHOTOGRAPHY	70	0	0	0	4	8	8	8	2	0	8	4	2	0
		0	0	0	20160	39200	34720	32480	7560	0	22960	11200	5600	0
14 IMAGE INTENSIFICATION	35	0	4	0	4	8	8	4	1	0	2	4	1	8
		0	13860	0	10080	19600	17360	8120	1890	0	2870	5600	1400	8400
15 LASER, BLUE-GREEN	18	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
16 LASER, OTHER	18	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
17 ULTRAVIOLET	70	0	0	0	4	0	2	1	0	0	0	0	0	0
		0	0	0	20160	0	8680	4060	0	0	0	0	0	0
18 NUCLEAR	70	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
19 CHEMICAL	70	0	0	0	0	0	0	2	0	0	0	0	0	0
		0	0	0	0	0	0	8120	0	0	0	0	0	0
20 ANIMAL (BIPD)	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
21 ACOUSTIC EMISSION	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
22 MECHANICAL VIBRATION	35	0	0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	999	109200	117810	21280	199080	210700	199640	144130	54810	17220	71750	49000	82600	79800
NORMAL		65	70	13	118	125	119	86	33	10	43	29	49	47
RANK		6	5	18	3	1	2	4	12	19	10	13	8	9

8 ← CELL VALUE
17480 ← CELL PRODUCT

CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

SIE SURVEILLANCE FUNCTION AND SIE DESCRIPTION

023 LOCATE: RANGE AND BEARING
004 DETECT: SMALL VESSEL (16'-40'), METAL BUOY, BEACON, ICEBERG, AFLOAT SEAPLANE
025 LOCATE: GEOGRAPHICAL POSITION
034 OBSERVE: STRUCTURAL INTEGRITY
037 OBSERVE: MOVEMENT OF OBJECT OF INTEREST
003 DETECT: MEDIUM SIZED VESSEL (40'-150')
002 DETECT: LARGE VESSEL (150'+)
029 IDENTIFY: TYPE
047 OBSERVE: HAZARDOUS ACTIVITY
024 LOCATE: ALTITUDE OR DEPTH
026 IDENTIFY: NAME OR IDENTIFYING NUMBER
005 DETECT: SWIMMER, NON-METAL BUOY, FISH TRAP MARKER, GROWLER, DITCHED AIRCRAFT
046 OBSERVE: HOSTILE ACTIVITY
033 IDENTIFY: CHARACTERISTIC CODE

CROSS-RELEVANCE MATRIX: APPLIED TECHNOLOGIES vs REQUIREMENTS, SCENE 5

REQUIREMENTS (SIEs)

TECHNOLOGY	WT	013	019	030	018	022	038	021	008	015	027	TOTAL	NORMAL	RANK
		30	26	25	24	20	18	18	17	17	17	999		
1 AIR ACOUSTICS	70	0 0	8 14560	0 0	0 0	2 2800	8 10080	0 0	0 0	0 0	0 0	64960	39	10
2 SONAR, PASSIVE	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
3 SONAR, ACTIVE	35	0 0	0 0	0 0	0 0	2 1400	0 0	0 0	2 1190	0 0	0 0	86520	51	6
4 MAGNETIC FIELD	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
5 RADIO FREQUENCY	70	0 0	0 0	0 0	0 0	4 5600	0 0	0 0	0 0	8 9520	0 0	86030	51	6
6 ELECTROMAGNETIC FIELD	35	0 0	0 0	0 0	0 0	4 2800	4 2520	0 0	0 0	8 4760	0 0	77280	46	9
7 RADAR, OVER-THE-HORIZON	18	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
8 RADAR, MEDIUM RANGE	35	8 8400	0 0	0 0	0 0	8 5600	0 0	0 0	0 0	0 0	0 0	136220	81	4
9 RADAR, MILLIMETER	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
10 INFRARED	35	8 8400	0 0	0 0	2 1680	8 5600	8 5040	0 0	0 0	0 0	0 0	80220	48	8
11 TELEVISION	70	8 16800	0 0	2 3500	4 6720	8 11200	8 10080	0 0	0 0	0 0	8 9520	307580	183	2
12 OPTICS	70	8 16800	0 0	8 14000	8 13440	8 11200	8 10080	0 0	1 1190	0 0	8 9520	438130	260	1
13 PHOTOGRAPHY	70	8 16800	0 0	8 14000	1 1680	8 11200	0 0	0 0	1 1190	0 0	8 9520	228270	136	3
14 IMAGE INTENSIFICATION	35	4 4200	0 0	0 0	4 3360	8 5600	8 5040	0 0	0 0	0 0	2 1190	108570	65	5
15 LASER, BLUE-GREEN	18	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
16 LASER, OTHER	18	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
17 ULTRAVIOLET	70	8 16800	0 0	0 0	0 0	1 1400	0 0	0 0	0 0	0 0	0 0	51100	30	11
18 NUCLEAR	70	0 0	0 0	0 0	0 0	0 0	0 0	8 10080	0 0	0 0	0 0	10080	6	12
19 CHEMICAL	70	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	8120	5	13
20 ANIMAL (BIRD)	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
21 ACOUSTIC EMISSION	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
22 MECHANICAL VIBRATION	35	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0	14
TOTAL	999	88200	14560	31500	26880	64400	42840	10080	3570	14280	29750	1683080	1001	
NORMAL		52	9	19	16	38	25	6	2	8	18		1000	
RANK		7	20	15	17	11	14	22	23	21	16			

8 ← CELL VALUE
17480 ← CELL PRODUCT

CELL PRODUCT = CELL VALUE X ROW WT X COLUMN WT

013 DETECT: LIQUID POLLUTANT
019 DETECT: SOUND EMISSION IN AIR
030 IDENTIFY: COLOR
018 DETECT: ELECTROMAGNETIC EMISSION: LIGHT (400-750 THZ) (0.75-0.4 MICRON)
022 LOCATE: RANGE OR BEARING
038 OBSERVE: TRANSMISSION TIME SCHEDULE
021 DETECT: NUCLEAR RADIATION: ALPHA AND BETA PARTICLES, GAMMA RAYS
008 DETECT: DIVER (UNDERWATER SWIMMER)
015 DETECT: ELECTROMAGNETIC EMISSION: RADIO (10 KHZ-30 GHZ)
027 IDENTIFY: FLAG (U.S. OR FOREIGN)