

해상교통관제 업무의 분석

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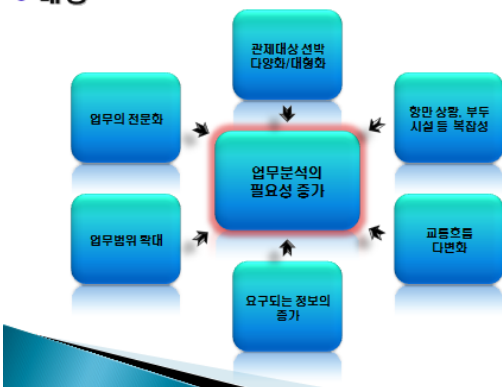
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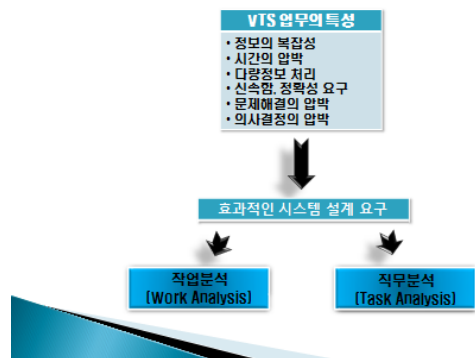
요약 : 해상교통관제(VTS; Vessel Traffic Service)는 IMO RESOLUTION A.857(20) on Guidelines for Vessel Traffic Services와 해사 안전법 제36조, 개항질서법 제28조에 의거 해상운송에서의 위험을 감소하고 해상교통질서확립과 안전확보를 위하여 전세계 주요 항만 및 수역에서 이용되고 있다. 최근 관제대상 선박의 다양화, 대형화, 연안 및 항계 내/인근의 교통상황의 다변화 등으로 인하여 해상교통관제는 항만에 주요한 정보제공의 수단으로 발전하고 있다. 해상교통관제사는 이러한 특수한 업무적 환경에 따라 점차 그 업무 범위가 확대되는 경향이 있으며, 계속하여 전문화되어 가고 있다. 또한 보다 질 높은 해상교통관제의 정보제공 업무 뿐 아니라 정확성, 준비성, 판단력, 의사결정능력 등이 관제업무에 필수적으로 요구되고 있다. 따라서 본 연구에서는 해상교통관제 및 해상교통관제사의 보다 체계적인 업무분석을 통해 관제사들이 효율적으로 관제업무를 수행하도록 실무적 보안을 도모하고 개선사항 및 발전방향을 제시하고자 한다.

핵심용어 : 해상교통관제, 업무분석, 직무분석, Task Analysis, DACUM

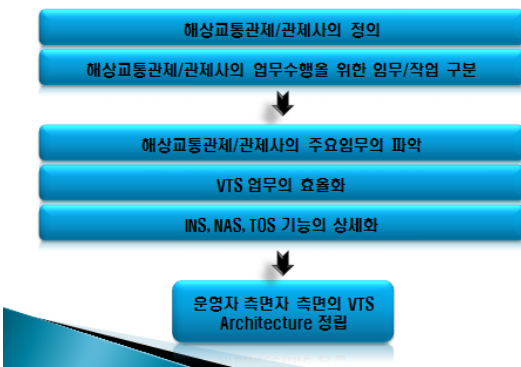
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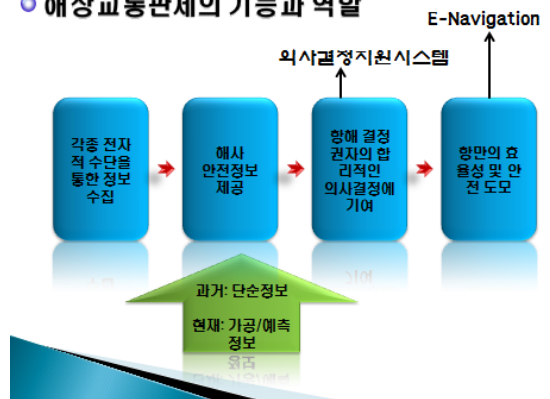
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목적



해상교통관제의 기능과 역할



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○ 해상교통관제의 기능과 역할

2. 지방해양안전청해상교통관제운영규정
(개정 2009.10.19 국토해양부 훈령 제 480호)

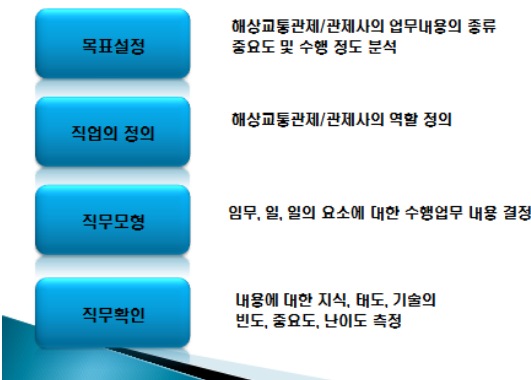
[제 2조의 5] “해상교통관제업무” 라 함은 관제구역 안에서 이동선박에 대하여 원활한 해상교통, 질서유지 및 선박 안전 운항을 위하여 관찰확인/정보제공/조언/권고/지시를 하거나 필요한 항만운영정보를 제공하여 주는 업무를 말한다.

○ 해상교통관제의 기능과 역할

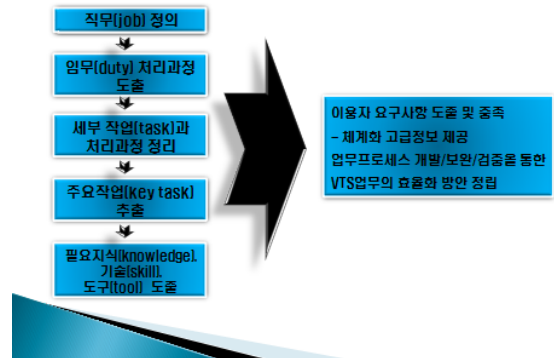
3. 해상교통관제의 주요기능(IMO A.857(20), Guidelines for VTS)

정보제공업무 (INS: Information Service)	- 선내 의사결정 과정에 직접적으로 참여하지 않음. - 선위보고, 타 선박의 식별 및 의도, 수모조건, 기상, 위험물, 선박통항에 영향을 주는 요소
교통관리업무 (TOS: Traffic Organization Service)	- 교통운영 및 관리 - 교통의 우선순위, 구역의 할당, 속력제한 등 - 해상교통 위험상황의 식별 및 관리 - 교통혼잡 및 위험상황 회피를 위한 선박 이동에 대한 사전계획 구성
항행원조업무 (NAS: Navigational Assistance Service)	- 항해 및 기상상황 또는 항해상의 결함 - 선박의 요구 혹은 관제사의 판단에 따라 제공. - 선박이 항행원조 서비스를 수락하고 항행원조의 시작과 끝을 명백히 해야 함.

○ 업무분석_DACUM 직무분석의 절차



○ Task Domain Model



○ 업무분석_직업의 정의

- ▶ **Vessel traffic service (VTS)** - a service implemented by a Competent Authority, designed to improve the safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area.
- ▶ **VTS operator** - a VTS operator is an appropriately qualified person performing one or more tasks contributing to the services of the VTS. However, for the specific purposes of these Guidelines, VTS operator further means a person who provides, if duly authorized, instructions and information to vessels and decides what action should be taken in response to data received. This person may be directly responsible for communications within a defined geographical area within a VTS area, or may relay such information and decisions through an intermediary

○ 업무분석_직무 모형



○ 업무분석_직무 모형_INTERNAL VTS PROCEDURES

DUTY	TASK
Gathering and Recording of Information	Communications (Internal and external) / Sensor data (radar, CCTV, AIS) / Shipping information data (vessel and cargo data, vessel movement) / Meteorological and hydrological data / Data from other sources
Operational Staff	Safe and efficient operations staff (to meet the operations needs) / Human resources (staffing, rest period arrangements)
Equipment Operation, Maintenance, Calibration and Updating	Properly maintained and be readily available / Operation of equipment to cover all normal and emergency procedures / Determination of acceptable availability criteria for equipment / Categorization and prioritization of maintenance and defects / Calibration of all sensors within specified tolerance level / Updating of equipment (hardware and software, manuals/handbooks)
Interaction with Allied Services	FISPs / Tug operators / Shipping Agents / Government agencies (law enforcement agencies) / Commercial organizations
Public Relations	Dealing with the media and public / Promoted lead agency for public relations / Protection of sensitive information
Security	Ensure the security / Data transmission and storage / VTS personnel/VTS buildings and structures (International Ship and Port Facility Security Code (ISPS))
Training	Regular assessments and application - IALA Recommendation V-102
Watch Handover	Present/Expected developing traffic situations / Incidents and special operations (SAR/military operations) / Environmental conditions / Equipment performance availability / Status of allied services / Personnel availability / Appropriate times for watch handover / Method for documenting the handover
Vessel Handover	Vessel handover between adjacent sectors / Mutual understanding of the handover procedures / Identification of information to be communicated between operators / Communication channel, vessel identification, etc. / Method for documenting the handover
Maintenance of Marine Publications	Updating, updating and disseminating notices and associated publications (paper and electronic)
Emergency Procedures	System Failure/loss of external communications/interms / Contingency plans / Communications/functionality of sensor equipment/port information management system / Retrieval action / Internal emergencies/the flood / Collision procedures / Forced evacuation of VTS centre / Recording of incident / Personnel medical emergencies / Data safeguarding / Security incidents / Post-emergency debriefing

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○ 업무분석_직무 모형_EXTERNAL VTS PROCEDURES

DUTY	TASK
In-Arrival Information	Route plan / ETA / Vessel identity (name, IMO number, Call Sign, MMSI) / Vessel draught / Hazardous, dangerous or polluting cargo details / ISPS security level / Information about any vessel defects or deficiencies / Other specified details
Vessels Entering VTS Area	Communication requirements for participating vessels / Processes to ensure advanced information has been obtained / Procedures for non-compliance / Procedures for information exchange with allied services / Establishing communications and verifying vessel identity and position / Confirm reporting requirements/Provide relevant traffic information / Provide navigational safety information / Establish compliance with IMO requirements (ports, publications, storage plan, mechanical defects, personnel shortages) / Updating information with allied services
Vessels within VTS Area	Identification of reporting requirements
Mandatory Participation	Provision of relevant information / Environmental conditions / Traffic situation / Navigational conditions / Traffic separations/overlaking restrictions / Warnings and restrictions concerning the movement of traffic / Special provisions for vessels carrying hazardous/dangerous/polluting cargo / Compliance with pilotage directions and any special requirements
Vessels within VTS Area	Procedures for non-compliance by a vessel with the requirements / procedures laid down for the VTS area
Voluntary Participation	Procedures for information exchange/update on allied services / Consideration of requirements to track/monitor / communicate with vessels not required to participate in the VTS
Vessels at Anchor	Procedures for information exchange/update on allied services / Anchorage assignments / Communication requirements / Reporting requirement for vessels prior to leaving the anchorage / Non-compliance by a vessel with the requirements / procedures laid down for the VTS area / Information exchange/update with respect to allied services
Vessels at Berth	Information exchange/update with respect to allied services / Reporting requirements for vessels or arrival at berth / Security requirements and/or level / Social requirements to maintain communications watch / Need for restrictions for other vessels passing the berth / Reporting requirement for a vessel prior to leaving the berth / Non-compliance by a vessel with the requirements and procedures laid down for the VTS area / Information exchange/update with respect to allied services
Vessels Departing the VTS Area	Reporting requirement for vessels prior to departing the area / Non-compliance with the VTS area requirements / Transfer of vessel information (identification, cargo, destination and ETA destination) / Process for continuous communication procedures / Transfer of vessel information (identification, cargo, destination and ETA destination) / Process for continuous communication procedures
Transition between Adjacent VTS Areas	Process to ensure vessel monitoring
Adverse Environmental Conditions	poor visibility, strong currents or tide streams, high winds, etc) / Restrictions or prohibition on movement / Appropriate reporting requirements / Additional separation between vessels / Additional requirements (mandatory tug service, pilot, etc.)

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○ 업무분석_직무 모형_EXTERNAL VTS PROCEDURES

DUTY	TASK
Emergency Procedures; Collision, Casualty, Sinking, Grounding, Fire On Vessel, Man Overboard	Berth rescue co-ordination centre / Inform and co-operate with relevant emergency services / Inform relevant regulatory authorities / Act on local call-out procedures / Consider back-up VTS personnel / Promulgate information concerning incident to vessels in VTS area / Restrict traffic in the area
Emergency Procedures; Pollution	Activate tug and other support units / Ensure all recording equipment is operating correctly / Inform relevant environmental authority (and/or services) / Inform and co-operate with relevant regulatory authorities / Assess scope of incident and call in specialist support as appropriate / Promulgate information concerning incident to vessels in VTS area / Restrict traffic in the area
Emergency Procedures; Places of Refuge	According to national requirements and the particular arrangements arising out of the implementation of (IMO Resolution A.949(23))
Emergency Procedures; Medical Emergency	Inform IURCO rescue co-ordination centre / Inform coastal radio station / Consider special manning requirements
Emergency Procedures; Vessel Not Under Command (NUC)	Promulgate information concerning incident to vessels in the VTS area / Detail defined information about on board situation / Maintain communication with vessel / Assess vessels proximity to danger/danger to vessel (self and other traffic) / Activate tug and other support units if appropriate
Emergency Procedures; Security Incident	Procedures in the event of a security incident should be established / Procedures should reflect any involvement of the VTS with the PSPF (Port Facility Security Plan) as per the International Ship and Port Facility Security Code (ISPS)
Emergency Procedures; Protest Action	Berth responsible authority / Act on local call-out procedures, including VTS manager / Promulgate information concerning incident to vessels in the VTS area
Emergency Procedures; Natural Disaster	earthquake, tide surge, fire, exceptional weather conditions) / Promulgate information to vessels in the VTS area / Act on local call-out procedures / Inform rescue co-ordination centre

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○ 해결방안 및 보완점



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○ 결론

- 해상교통관제사 직무에 대한 올바른 인식과 공감대 형성이 요구됨.
- 신규 해상교통관제사의 교육 및 경력 개발에 업무의 중요도, 난이도, 빈도를 고려한 체계적인 교육을 제공하는 기초자료를 제공해야 함.
- 해상교통관제사의 직무 수행직업표를 관제사의 교육 및 교육과정 개발에 활용.
- 직무 수행직업표에 근거하여 해상교통관제사의 관제 능력을 확인하고 평가.

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