1 Lock Status Version: 0

Published: 25 August 2015 **Version: 0**

DAC: 366 **FI: 19**

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Summary of changes:

Version 0:

- DAC is set to 366 since message is still in testing.
- final revisions after conversations with USCG, USACE, and ECS vender.

1.1 Introduction

The Lock Status Report is used to report the status of a Lock. The report is intended to be originated from shore (e.g., from AIS competent authority or authority operating the lock).

1.2 Usage Notes

- The Message Linking Identifier (MLID) is used to link this Status Report with a Waterways Management Message (WWM) and Linked Text Message (LTM). Specifically, the WWM message can be used to provide the geographic location and name of the lock for legacy systems that do not have the navigation universal identification (NUID) database.
- The Lock ID is the 4-character NUID as published by the USACE.
- The report is encoded with the time (UTC hour and minute) of the information. The date is assumed to be the date of reception. Since this information time will always lag the time of transmission/reception if the time of the report is later than the current time, then it is for the previous day.
- NUIDs are defined for the locks and for the chambers. If the NUID specified is for the lock in general then the status information is for the lock as a whole. If the NUID is for a specific chamber then the message reflects that status of that chamber.
- The UN-LOCODE is 5 characters with the first 2 being the country; this can be determined from the MMSI country code so just the last 3 characters of the LOCODE are transmitted.
- If Lock/Chamber Operational Status is limited (2) or closed (3) then one of the stoppage codes should be selected. If the lock is operating then stoppage reason shall be set to 0 (no stoppage) – unless a future stoppage is indicated by non-zero times for the projected stoppage time fields in which case the stoppage code is for the planned outage.

- Only a few codes have been defined so far for special locking instructions; more will be added later.
- Delays of longer than 4 hours should not occur unless there is a stoppage.
- Although gauge and weather and temperature could be transmitted via an environmental message, they can be included here for ease and compactness (the gauge trend value is also not supported by the environmental messages).
- If the lock operator knows of an upcoming stoppage this can be reported by filling in the projected time of stoppage start time fields. If these fields are used then a lock stoppage code can be selected to indicate why the lock will be closed. If no stoppage is planned, then these fields shall be set to not available.
- If there is a current or planned outage then the Date/Time for return to full operation fields are used to indicated when the lock will be back to normal operations. If there is no current or planned outage these fields shall be set to not available.

1.3 Message Format

Table 1: Lock Status Report (Broadcast)

	Parameter		# of Bits	Description
Standard Message Header	Message ID		6	Identifier for Message 8; **always 8.**
	Repeat Indicator		2	Indicates how many times a message has been repeated. 0 – 3; 0 = default; 3 = do not repeat any more. **Set to 0 (default).**
	Source MMSI		30	MMSI number of source station. This varies according to the transmitter ID.
	Spare		2	Not used. **Set to zero.**
Binary Data	Designated Area Code		10	Designated area code (DAC). This code is based on the maritime identification digits (MID). **Set to 366 (US)** for testing, set to 367 for final.
	Function Identifier		6	Function identifier. **Set to 19.**
	Application Data	Version	3	Sequential number used to indicate the message version in steps of 1. 0 = test message = default; 1 – 7 = message version; **Set to 0.**
		Message Linkage ID	10	Identifier for the Lock Status Report. This number uniquely identifies an event and is used to connect additional information with the event. Source MMSI and this ID uniquely identify the event. Set to 0-1023 by message originator; 0 = not available = default.
		UN-LOCODE	18	Last three characters of the UN LOCODE. The country code is determined by the country code of the MMSI. Six-bit ASCII as per ITU-1371.
		Navigation Unit ID	24	Navigation Unit Identifier (NUID). This is a 4-character code, four 6-bit ASCII characters as per ITU-1371. This must be defined in order to send the message. This could refer to the lock as a whole or an individual chamber.
		Time of Lock/ Chamber Status – UTC Hour	5	UTC Hour of status report. 0 – 23; 24 = UTC hour not available = default; 25 – 31 (reserved).
		Time of Lock/ Chamber Status – UTC Minute	6	UTC Minute of status report. 0 – 59; 60 = UTC minute not available = default; 61 - 63 (reserved).
		Lock/Chamber Operational Status	3	Describes the operational status of the lock (all chambers). 0 = unknown=default; 1 = lock/chamber operating normally; 2 = limited operation; 3 = lock/chamber closed.
		Stoppage Reason	4	0 = No stoppage – lock operating normally (default); 1 = weather conditions; (fog, rain, snow, sleet, hail, wind, lightning, ice on equipment) 2 = accident / grounding (including collision); 3 = operations (run-spill-divert water, flush-seals-reserve, limited staffing, staff occupied, tow detained, etc.); 4 = environmental (i.e. fish, animals, oil spills, etc.); 5 = equipment malfunction / repairs / maintenance / inspections; 6 = low water; 7 = ice in lock/chamber;

	Parameter		# of Bits	Description
				8 = river current / outdraft condition; 9 = flood; 10 = tow malfunction or interference from other vessels; 11 = debris in lock/chamber; 12 = bridge or other structure; 13 = lock closed for long term maintenance; 14 = other; 15 = reserved for future use.
		Special Locking Instructions	6	Locking instruction code. 0 = not available/unknown (default); 1 = none; 2 = report to lockmaster; 3 = Navigable pass; 4 = open pass; 5 – 63 = reserved.
		Vessels Waiting Upbound	4	Number of vessels waiting below the lock (proceeding upbound). 0 – 13 vessels; 14 = 14 or more vessels; 15 = unknown=default.
		Waiting Time Upbound	8	Waiting time upbound – average wait from arrival to SOL in minutes over previous 4 hours. 0 - 240 minutes; 241 = more than 240 minutes (lock not operating normally); 242 = unknown = default; 243 – 255 = reserved.
		Vessel Waiting Downbound	4	Number of vessels waiting above the lock (proceeding downbound). 0 – 13 vessels; 14 = 14 or more vessels; 15 = unknown=default.
		Waiting Time Downbound	8	Waiting time downbound – average wait from arrival to SOL in minutes over previous 4 hours. 0 - 240 minutes; 241 = more than 240 minutes (lock not operating normally); 242 = unknown = default; 243 – 255 = reserved.
		Average lockage time	8	Average lockage time (from SOL to EOL) over the past 24 hours in minutes. 0 – 240 minutes; 241 = unknown (default); 242 – 255 = reserved.
		Upper pool gauge	12	Upper pool gauge, in tenths of meters. 0 = unknown = default; 0.1 – 409.0 m; 4091 = gauge at 409.1 m or higher.
		Upper pool gauge trend value	8	Amount of increase (positive) or decrease (negative) in upper pool gauge over the last 24 hours, in tenths of meters. Negative in 2's complement. -12.5 m to 12.5 m; -127 = unknown = default; -126 = -12.6 ft or more; 126 = 12.6 ft or more; 127 = reserved.
		Lower pool gauge	12	Lower pool gauge, in tenths of meters. 0 = unknown = default; 0.1 – 409.0 m; 4091 = gauge at 409.1 m or higher.
		Lower pool gauge trend value	8	Amount of increase (positive) or decrease (negative) in lower pool gauge over the last 24 hours, in tenths of feet. Negative in 2's complement. -12.5 m to 12.5 m; -127 = unknown = default; -126 = -12.6 ft or more; 126 = 12.6 ft or more; 127 = reserved.
		Air Temperature	11	Dry bulb temperature in degrees Celsius, in 0.1 degree steps. -60.0 to +60.0 degrees Celsius(as per 2's complement); -1024 = data unavailable = default; -1023 to -601 = reserved; 601 – 1023 = reserved.

	Parameter			# of Bits	Description
		Water temperature		10	Temperature of the water in degrees Celsius, in 0.1 degree increments: -10.0C to + 50.0C degrees Celsius. temp = decimal value /10 – 10 for decimal = 0 – 600; 601 = data not available = default; 602 – 1023 = reserved.
		Weather		4	Weather code: 0 = unavailable (default); 1 = Blowing Snow/Dust (BS); 2 = Cloudy (CL); 3 = Drizzle (DR); 4 = Fair or Clear (FA); 5 = Fog or Haze (FG); 6 = Partly Cloudy (PC); 7 = Rain (RN); 8 = Showers (SH); 9 = Snow (SN); 10 = Thunderstorms(TH); 11 – 15 = reserved for future use.
		Date/ Time of Projected Stoppage Start	UTC Month	4	UTC Month of start of projected stoppage. 1-12; 0 = N/A = default 13-15 = reserved.
			UTC Day	5	UTC Day of start of projected stoppage. 1 – 31; 0 N/A = default.
			UTC Hour	5	UTC Hour of start of projected stoppage. 0 – 23; 24 = N/A = default; 25 - 31 = reserved.
			UTC Minute	6	UTC Minute of start of projected stoppage. 0 – 59; 60 = N/A = default; 61 - 63 (reserved for future use).
		Date/ Time for Return to Full Operation	UTC Month	4	UTC Month of expected end of outage. 1-12; 0 = N/A = default 13-15 = reserved.
			UTC Day	5	UTC Day of expected end of outage. 1 – 31; 0 N/A = default.
			UTC Hour	5	UTC Hour of expected end of outage. 0 – 23; 24 = N/A = default; 25 - 31 = reserved.
			UTC Minute	6	UTC Minute of expected end of outage. 0 – 59; 60 = N/A = default; 61 - 63 (reserved for future use).
Total bits				**272**	**2 Slot Binary Message**