

ENC Test Datasets for S-58 V5.0

S-58 Test Dataset Report; Edition 1.0 March 2014

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1. Introduction

S-58 validation checks were originally developed to facilitate content and integrity testing of S-57 datasets. The S-58 checks were outlined using descriptive text, however; no standardized testing software was developed for data producers to test their products. As a result, a variety of data production software manufacturers interpreted the S-58 validation check specification and adopted it into their own validation tools.

To reduce ambiguity and improve the precision of validation software, a group of 28 test datasets have been produced, each containing a variety of negative test case scenarios. Each test case scenario was developed to incorporate intentional data errors aiming to trigger the corresponding S-58 errors. This in turn allows software manufacturers to confirm that their validation tools report errors correctly. Using the 28 datasets, 396 tests cases have been established to support systematic software testing.

1.1. References

- a. S-58 Recommended ENC Validation Checks, Edition 5.0
- b. IHO Transfer Standard for Digital Hydrographic Data, Edition 3.1
- c. ENC Product Specification, Edition 2.0
- d. Use of the Object Catalogue for ENC, Edition 3.0.0

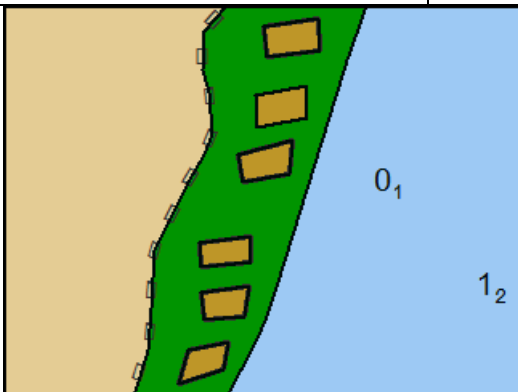
1.2. Using the S-58 Test Datasets

This document outlines the content of all 28 S-58 test datasets. It is organized into chapters, one for each dataset and its associated tests. A list of the tests is provided on the first page while a description of each test is listed in tabular format on subsequent pages. For each S-58 test a general test description is provided, followed by one or more test scenarios designed to trigger specific errors or warnings. The expected test results along with a section for the expected secondary errors are also provided. The secondary errors section is intended to list any additional errors which also happen to be triggered by the objects from each test case. The listing of secondary errors aims to facilitate easier cross referencing of errors when reviewing more than one test case scenario at a time or when reviewing cumulative test results for a specific test number.

Please note that secondary errors for the same S-58 check can appear in multiple sections of this document, as many different test case scenarios can trigger instances of the same type of secondary errors. For this reason it is advisable to search the entire document or the corresponding dataset chapter to determine the total count of specific error numbers when reviewing cumulative test results.

It is envisioned that the actual testing will be conducted in one of two ways: test case scenario centric or S-58 check centric. During the first approach, the test case scenario of interest should be reviewed closely and tested. The errors and/or warnings triggered should match those listed under both the primary and the secondary test results. When testing using the second approach, the entire dataset section should be searched for any corresponding S-58 checks that are expected to be triggered by any of the tests and the sum of all errors and/or warnings should match the test results.

1.3. S-58 Test Case Example; Test Dataset T0062

Dataset Name	AA500001	S-58 test No.	T0062	Type	W
S-58 Description	For each PONTON, HULKES or FLODOC object of type area where any edge shares the geometry of a line COALNE or SLCONS object AND the edge does not also share the geometry of a LNDARE object of type area.				
Message	PONTON, HULKES or FLODOC which uses an SLCONS or COALNE edge which is not on the edge of LNDARE.				
Solution	Ensure all SLCONS or COALNE objects are backed by LNDARE objects.		Conformity	Logical consistency	
Test Case No. 1	PONTON, HULKES and FLODOC areas bounded by SLCONS (L) and COALNE.				
Location	32°23'34.61"S 60°40'55.99"E	S57 Encoding	PONTON (A) HULKES (A) FLODOC (A) COALNE (L) SLCONS (L)	WATLEV = 2	
Screen Capture					
Expected Test Results	T0062: 6 warnings “PONTON, HULKES or FLODOC which uses an SLCONS or COALNE edge which is not on the edge of LNDARE” must be triggered.				
Secondary Errors	T0057: 3 additional errors “COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects” must be triggered.				

For this test, the corresponding test dataset AA500001 contains PONTON, HULKES and FLODOC areas bounded by SLCONS and COALNE as shown. As a result, six T0062 warnings should be reported by the validation software along with the three T0057 secondary errors.

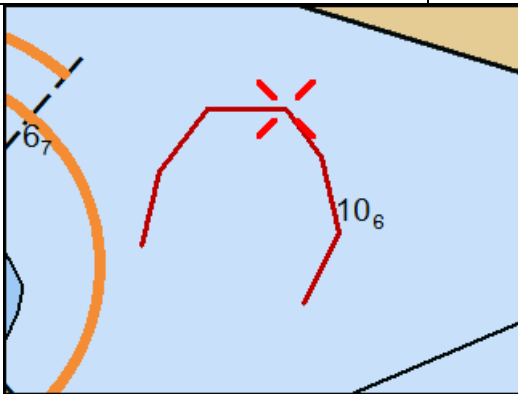
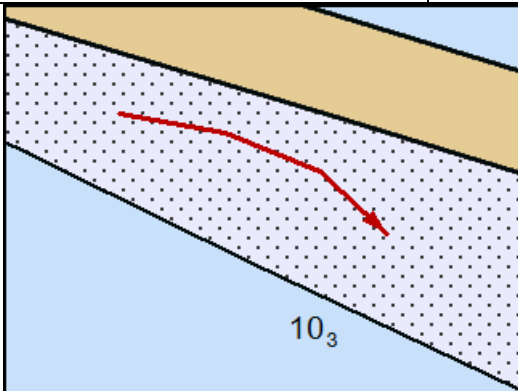
When looking for cumulative error totals, while testing AA500001, two additional T0057 errors should be reported based on different case scenarios present in this particular dataset. In addition to the above, six more T0057 errors should be reported based on different case scenarios present in AA500003 dataset.

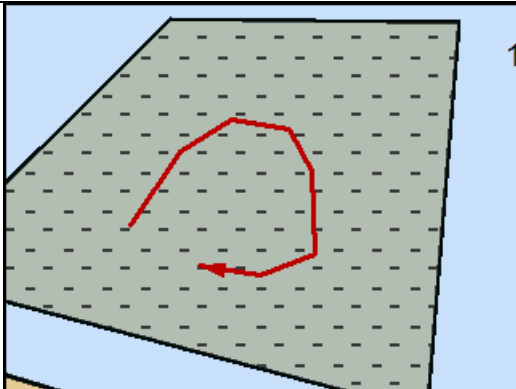
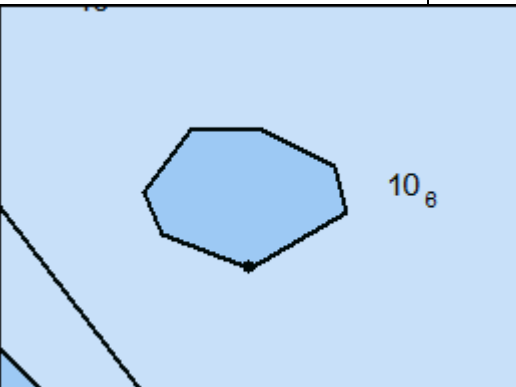
2. S-58 Test Datasets

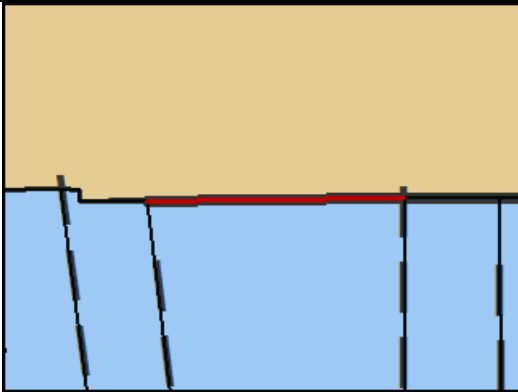
2.1. Test Dataset: AA500001

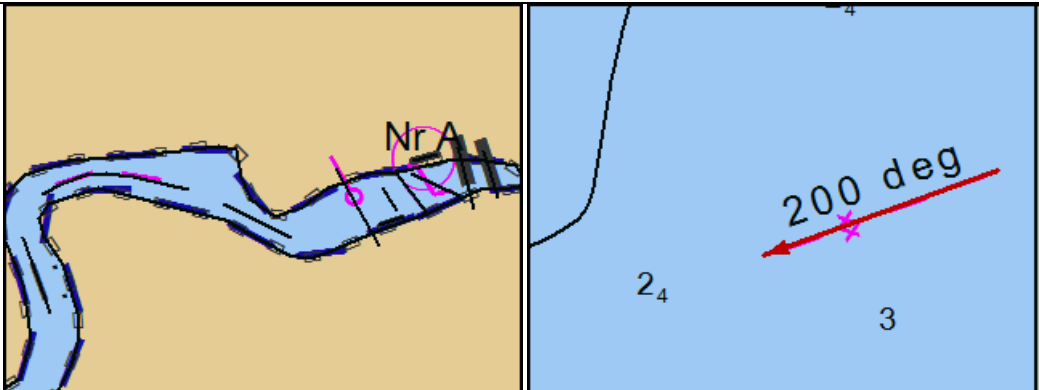
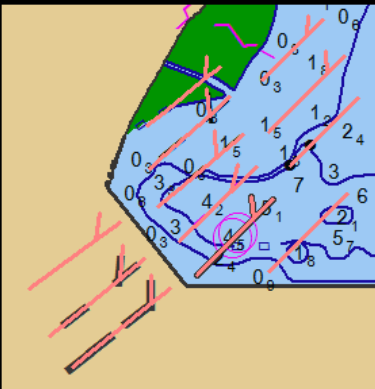
S-58 Recommended ENC Validation Checks covered in this section:


S-58 Test	Description
43	For each DEPCNT object which is not COINCIDENT with two Group1 objects AND is not WITHIN an UNSARE or DRGARE.
44	For each values of DRVAL1 or DRVAL2 (except the shallowest and the deepest found in the ENC) of DEPCNT of type area which are not equal to values of VALDCO on DEPCNT objects found in the ENC.
45a	For each object of type line which shares an edge with another object of the same class of type line where the object is not one of the following BERTHS, CBLOHD, CBLSUB, CONVYR, DWRTCL, FERYRT, MARCUL, MORFAC, NAVLNE, PIPSOL, RCRTCL, RECTRC.
45b	For each object of type line which shares an edge with another object of the same class and attribute values of type line where the object is one of the following BERTHS, CBLOHD, CBLSUB, CONVYR, DWRTCL, FERYRT, MARCUL, MORFAC, NAVLNE, PIPSOL, RCRTCL, RECTRC.
50	For each RECTRC where CATTRK=1 or NAVLNE object where its nodes/vertices do not lie on a straight line.
51a	For each COALNE object which is COINCIDENT with a SLCONS object of type line.
51b	For each COALNE object which is COINCIDENT with a SLCONS object of type area WITHIN a LNDARE AND where WATLEV is not populated or encoded with the values (2) [always dry] or (1) [partly submerged at high water].
55	For each LNDARE object of type point or line which is WITHIN a LNDARE object of type area AND not WITHIN an object LAKARE or RIVERS or DOCARE or LOKBSN or CANALS of type area.
56	For each BUAARE object not WITHIN a LNDARE object of type area or which is COINCIDENT with a LNDARE object of type point or line.
57	For each COALNE object which is not COINCIDENT with a LNDARE or SLCONS object with CONDTN=1 or 3 or 5 or is WITHIN a LNDARE object of type area or is COINCIDENT with LNDARE objects on both sides.
60	For each CBLSUB object INTERSECTS a LNDARE object of type Area.
61a	For each object of type line or area where WATLEV = 3 [always underwater/submerged] which OVERLAPS or is WITHIN an inter-tidal area (DEPCNT with DRVAL2 ≤ 0) OR LNDARE object of type area.
61b	For each object of type point where WATLEV = 3 [always underwater/submerged] which is WITHIN an inter-tidal (DEPCNT with DRVAL2 ≤ 0) area OR is WITHIN a LNDARE of type area OR EQUALS a LNDARE of type point or is situated on a LNDARE of type line.
62	For each PONTON, HULKES or FLODOC object of type area where any edge shares the geometry of a line COALNE or SLCONS object AND the edge does not also share the geometry of a LNDARE object of type area.
63	For each RECTRC object which INTERSECTS line or area objects of the following types LNDARE, PONTON, HULKES, FLODOC OR any object where WATLEV = 1 [partly submerged at high water] or 2 [always dry].
64	For each ACHARE object of type point or area where CATACH does not equal 8 [small craft mooring area] which OVERLAPS another object where RESTRN includes the value 1 [anchoring prohibited].
65	For each LIGHTS object which EQUALS another LIGHTS object AND STATUS does not equal 4 [not in use], 6 [reserved] or 11 [extinguished] where sectors overlap AND none of the values of the following attributes are different CATLIT, EXCLIT, LITCHR, SIGPER or SIGGRP.
67	For each object where its object class, attribution and geometry is identical to another object.
70a	For each DEPCNT object of type line which does not EQUAL a Group 1 boundary.
70b	For each DEPCNT objects of type line.
72	For each set of hierarchical relationships which form a loop (e.g. no master object is slave of its own slave).
74	For each DEPCNT object which does not share an edge with a Group 1 object AND is WITHIN an area DEPCNT object with DRVAL1 AND DRVAL2 equal to not Null AND DRVAL2 ≤ VALDCO ≤ DRVAL1.
75	For each DEPCNT object which does not share an edge with a Group 1 object AND is WITHIN an area DRGARE object with DRVAL1 equal to not Null AND VALDCO ≤ DRVAL1.

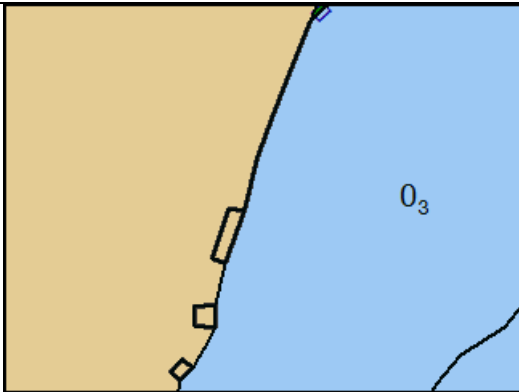
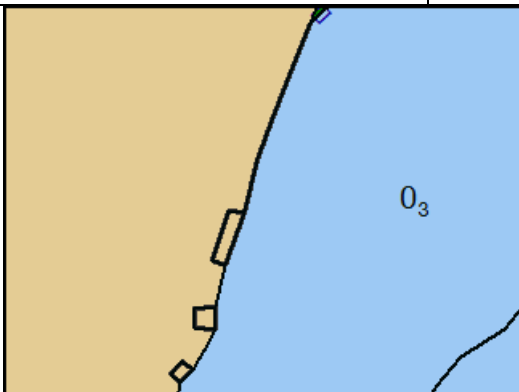
Dataset Name	AA500001	S-58 test No.	T0043	Type	W
S-58 Description	For each DEPCNT object which is not COINCIDENT with two Group1 objects AND is not WITHIN an UNSARE or DRGARE.				
Message	DEPCNT does not coincide with two group 1 objects.				
Solution	Amend DEPCNT or Group 1 objects as required.	Conformity	Logical consistency		
Test Case No. 1	Floating DEPCNT.				
Location	32°23'33.77"S 60°43'19.67"E	S57 Encoding	DEPCNT	VALDCO=6	
Screen Capture					
Expected Test Results	T0043: A warning “DEPCNT does not coincide with two group 1 objects” must be triggered.				
Secondary Errors	None				
Test Case No. 2	DEPCNT inside DRGARE.				
Location	32°23'35.36"S 60°43'27.65"E	S57 Encoding	DEPCNT DRGARE	VALDCO=20 DRVAL1=20	
Screen Capture					
Expected Test Results	T0043: A warning “DEPCNT does not coincide with two group 1 objects.” must not be triggered.				
Secondary Errors	T0075: An additional error “Floating DEPCNT WITHIN a DRGARE with VALDCO less than DRVAL1 of the DRGARE” must be triggered.				
Test Case No. 3	DEPCNT inside UNSARE.				
Location	32°23'31.56"S 60°43'26.23"E	S57 Encoding	DEPCNT UNSARE	VALDCO=1.8	

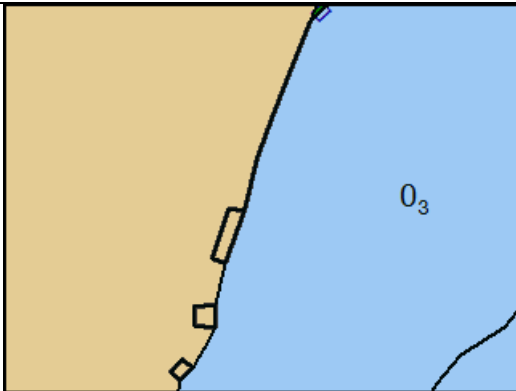
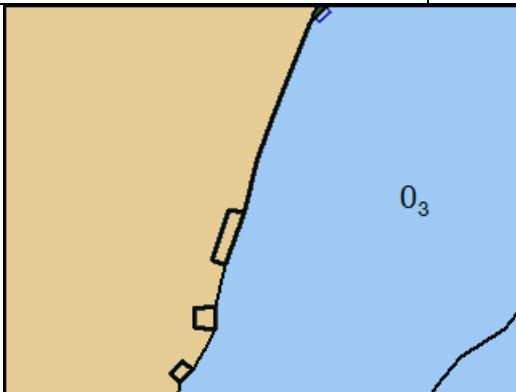
Screen Capture					
Expected Test Results	T0043: A warning “DEPCNT does not coincide with two group 1 objects” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0044	Type	W
S-58 Description	For each values of DRVAL1 or DRVAL2 (except the shallowest and the deepest found in the ENC) of DEPCNT of type area which are not equal to values of VALDCO on DEPCNT objects found in the ENC.				
Message	The value of DRVAL1 (or DRVAL2) is different than one of the values of VALDCO found in the ENC.				
Solution	Amend value of DRVAL1 (or DRVAL2) so that it equals a value of VALDCO.		Conformity	Logical consistency	
Test Case No. 1	DEPCNT (A) with bounding DEPCNT VALDCO not equal to DRVAL1/DRVAL2.				
Location	32°23'39.90"S 60°43'26.57"E	S57 Encoding	DEPCNT	DRVAL1=4.0 DRVAL2=4.9	
Screen Capture					
Expected Test Results	T0044: 2 warnings “The value of DRVAL1 (or DRVAL2) is different than one of the values of VALDCO found in the ENC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0045a	Type	W
S-58 Description	For each object of type line which shares an edge with another object of the same class of type line where the object is not one of the following BERTHS, CBLOHD, CBLSUB, CONVYR, DWRTCL, FERYRT, MARCUL, MORFAC, NAVLNE, PIPSOL, RCRTCL, RECTRC.				
Message	Coincident line objects of the same class.				

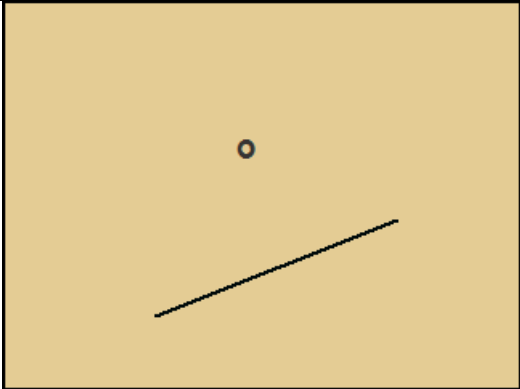
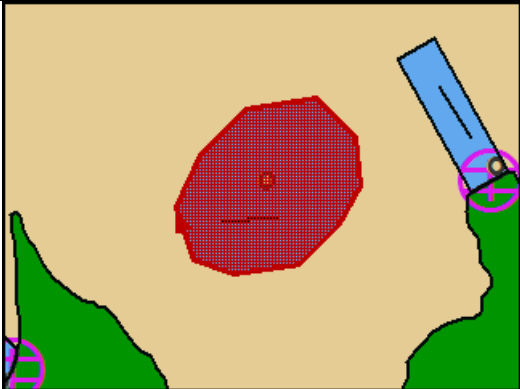
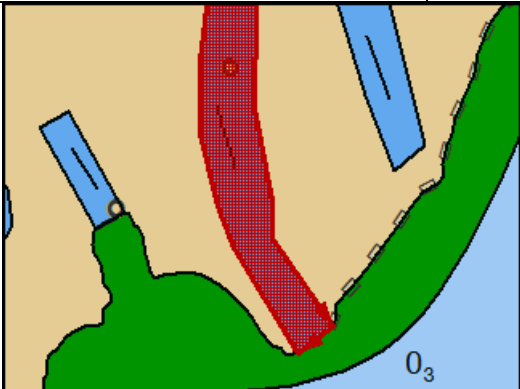
Solution	Delete coincident object.		Conformity	Logical consistency
Test Case No. 1	Two SLCONS (L) objects sharing the same edge.			
Location	32°23'36.41"S 60°42'45.01"E	S57 Encoding	SLCONS (L) SLCONS (L)	CATSLC=6 WATLEV=2 WATLEV=2
Screen Capture				
Expected Test Results	T0045a: A warning "Coincident line objects of the same class" must be triggered.			
Secondary Errors	None			
Test Case No. 2	For each object of type line which shares an edge with another object of the same class and attribute values of type line where the object is one of the following BERTHS, CBLOHD, CBLSUB, CONVYR, DWRTCL, FERYRT, MARCUL, MORFAC, NAVLNE, PIPSOL, RCRTCL, RECTRC.			
Location	All objects except DWRTCL are at 32°23'03.91"S 60°41'01.66"E. DWRTCL is at 32°22'21.43"S 60°43'27.42"E.	S57 Encoding	BERTHS (L) OBJNAM=A BERTHS (L) OBJANM=B CBLOHD (L) VERCLR=12 VERCSA=UNKNOWN CBLOHD (L) VERCLR=10 VERCSA=UNKNOWN CBLSUB (L) CATCBL=empty CBLSUB (L) CATCBL=1 CONVYR (L) VERCLR=12 CONVYR (L) VERCLR=10 DWRTCL (L) TRAFIC=3 DWRTCL (L) TRAFIC=4 FERYRT (L) CATFRY=1 FERYRT (L) CATFRY=2 MARCUL (L) CATMFA=1 MARCUL (L) CATMFA=2 MORFAC (L) CATMOR=1 MORFAC (L) CATMOR=2 NAVLNE (L) CATNAV=UNKNOWN NAVLNE (L) CATNAV=1 PIPSOL (L) CATPIP=empty PIPSOL (L) CATPIP=6 RCRTCL (L) OBJNAM=A RCRTCL (L) OBJNAM=B RECTRC (L) TRAFIC=3 RECTRC (L) TRAFIC=4	

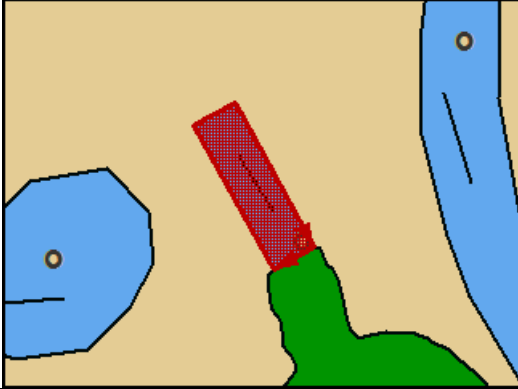
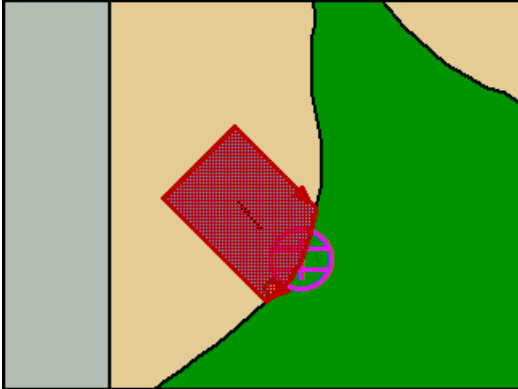
Screen Capture					
Expected Test Results	T0045a: A warning “Coincident line objects of the same class” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0045b	Type	W
S-58 Description	For each object of type line which shares an edge with another object of the same class and attribute values of type line where the object is one of the following BERTHS, CBLOHD, CBLSUB, CONVYR, DWRTCL, FERYRT, MARCUL, MORFAC, NAVLNE, PIPSOL, RCRTCL, RECTRC.				
Message	Coincident line objects of the same class and attribute values.				
Solution	Delete coincident object.		Conformity	Logical consistency	
Test Case No. 1	Twelve linear objects with the same edges.				
Location	32°22'31.84"S 60°43'02.05"E	S57 Encoding	BERTHS (L) CBLOHD (L) CBLSUB (L) CONVYR (L) DWRTCL (L) FERYRT (L) MARCUL (L) MORFAC (L) NAVLNE (L) PIPSOL (L) RCRTCL (L) RECTRC (L)		
Screen Capture					
Expected Test Results	T0045b: 12 warnings “Coincident line objects of the same class and attribute values” must be triggered.				
Secondary Errors	None				

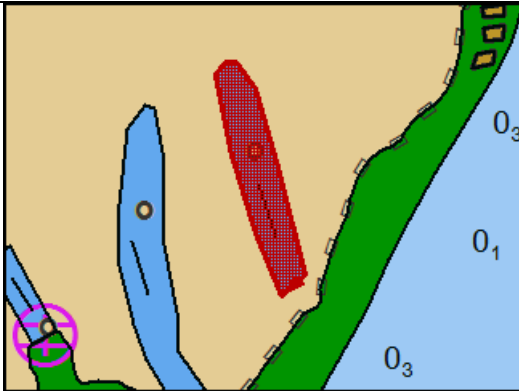
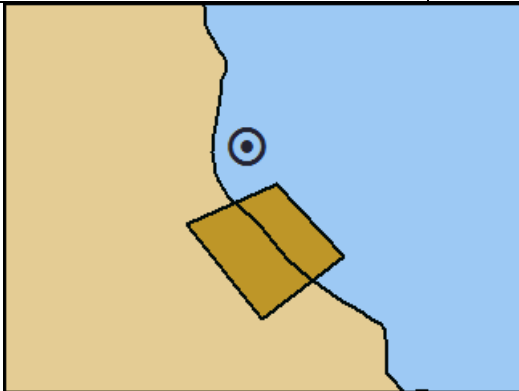
Dataset Name	AA500001	S-58 test No.	T0050	Type	E
S-58 Description	For each RECTRC where CATTRK=1 or NAVLNE object where its nodes/vertices do not lie on a straight line.				
Message	RECTRC where CATTRK=1 or NAVLNE is not a straight line.				
Solution	Amend geometry to a straight line.		Conformity	Logical consistency	
Test Case No. 1	NAVLNE and RECTRC are not a straight line.				
Location	32°23'42.74"S 60°41'30.46"E	S57 Encoding	NAVLNE RECTRC	CATNAV=3 ORIENT=55 CATTRK=1 ORIENT=55 TRAFIC=3	
Screen Capture					
Expected Test Results	T0050: 2 errors “RECTRC where CATTRK=1 or NAVLNE is not a straight line” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0051a	Type	W
S-58 Description	For each COALNE object which is COINCIDENT with a SLCONS object of type line.				
Message	COALNE and SLCONS objects share an edge.				
Solution	Amend objects so that they do not share an edge.		Conformity	Logical consistency	
Test Case No. 1	COALNE and SLCONS (L) are coincident.				
Location	32°22'24.92"S 60°42'58.86"E	S57 Encoding	COALNE (L) SLCONS (L)	WATLEV=2	

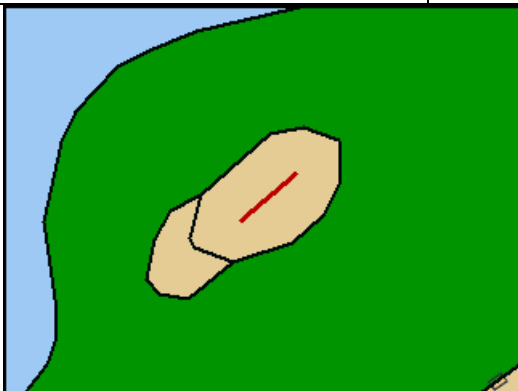
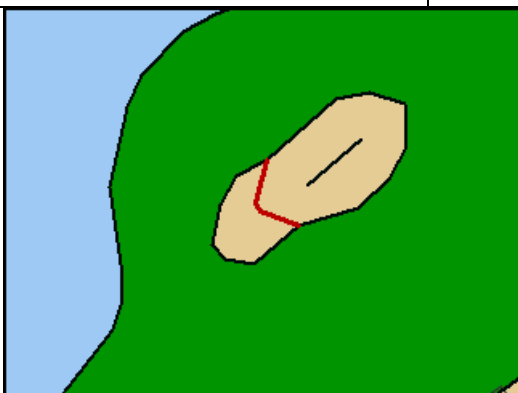
Screen Capture					
Expected Test Results	T0051a: A warning “COALNE and SLCONS objects share an edge” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0051b	Type	W
S-58 Description	For each COALNE object which is COINCIDENT with a SLCONS object of type area WITHIN a LNDARE AND where WATLEV is not populated or encoded with the values (2) [always dry] or (1) [partly submerged at high water].				
Message	COALNE and SLCONS with illogical values of WATLEV overlap.				
Solution	Amend objects so that they do not overlap or amend WATLEV values.		Conformity	Logical consistency	
Test Case No. 1	SLCONS (A) overlapping LNDARE (A) and bounded by COALNE.				
Location	32°22'25.63"S 60°42'58.54"E	S57 Encoding	COALNE (L) SLCONS (A)	WATLEV=1	
Screen Capture					
Expected Test Results	T0051b: A warning “COALNE and SLCONS with illogical values of WATLEV overlap” must be triggered.				
Secondary Errors	None				
Test Case No. 2	SLCONS (A) overlapping LNDARE (A) and bounded by COALNE.				
Location	32°22'26.55"S 60°42'58.21"E	S57 Encoding	COALNE (L) SLCONS (A)	WATLEV=2	

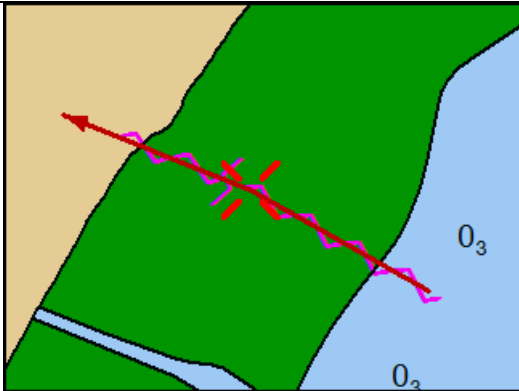
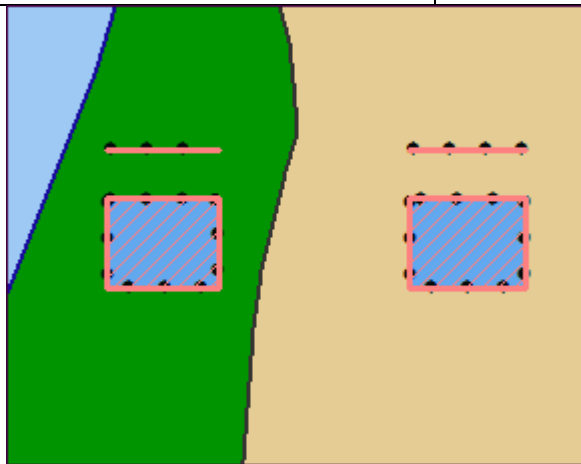
Screen Capture					
Expected Test Results	T0051b: A warning “COALNE and SLCONS with illogical values of WATLEV overlap” must be triggered.				
Secondary Errors	None				
Test Case No. 3	SLCONS (A) overlapping LNDARE (A) and bounded by COALNE.				
Location	32°22'27.17"S 60°42'57.87"E	S57 Encoding	COALNE (L) SLCONS (A)	WATLEV=undefined	
Screen Capture					
Expected Test Results	T0051b: A warning “COALNE and SLCONS with illogical values of WATLEV overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0055	Type	W
S-58 Description	For each LNDARE object of type point or line which is WITHIN a LNDARE object of type area AND not WITHIN an object LAKARE or RIVERS or DOCARE or LOKBSN or CANALS of type area.				
Message	Point LNDARE lies on land.				
Solution	Amend point LNDARE or area LNDARE accordingly.		Conformity	Logical consistency	
Test Case No. 1	LNDARE (L, P) overlapping LNDARE (A).				
Location	32°23'36.67"S 60°40'38.65"E	S57 Encoding	LNDARE (A) LNDARE (P) LNDARE (L)		

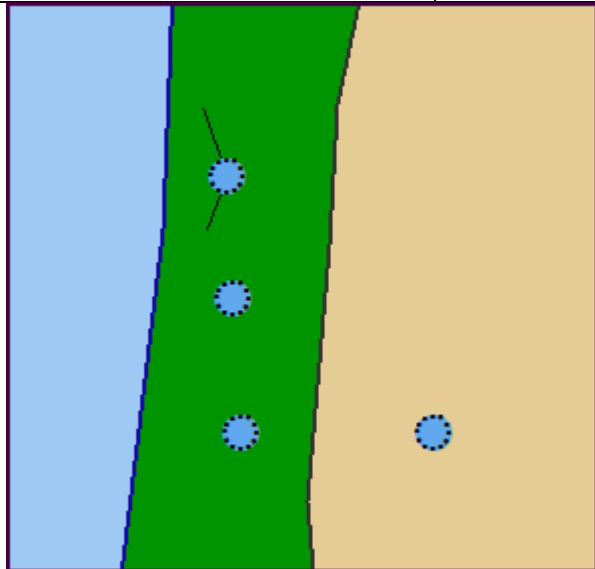
Screen Capture				
Expected Test Results	T0055: 2 warnings "Point LNDARE lies on land" must be triggered.			
Secondary Errors	T1672: An additional error "Object with the same attributes WITHIN an identical object" must be triggered.			
Test Case No. 2	LNDARE (L, P) overlapping LAKARE (A).			
Location	32°23'43.21"S 60°40'38.94"E	S57 Encoding	LAKARE (A) LNDARE (L) LNDARE (P)	
Screen Capture				
Expected Test Results	T0055: A warning "Point LNDARE lies on land" must not be triggered.			
Secondary Errors	T1672: An additional error "Object with the same attributes WITHIN an identical object" must be triggered.			
Test Case No. 3	LNDARE (L, P) overlapping RIVERS (A).			
Location	32°23'40.30"S 60°40'45.62"E	S57 Encoding	RIVERS (A) LNDARE (L, P)	
Screen Capture				
Expected Test Results	T0055: A warning "Point LNDARE lies on land" must not be triggered.			
Secondary Errors	T1672: An additional error "Object with the same attributes WITHIN an identical object" must be			

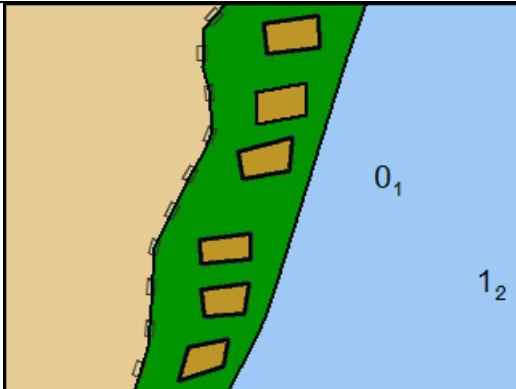
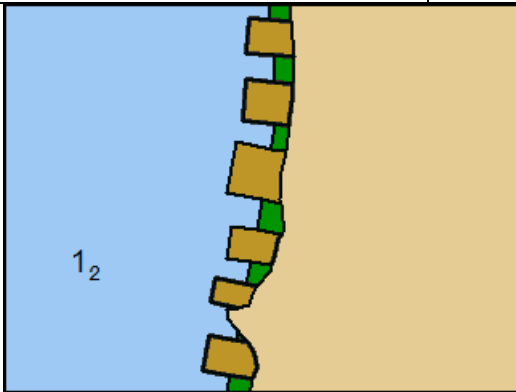
	triggered.			
Test Case No. 4	LNDARE (L, P) overlapping DOCARE.			
Location	32°23'41.91"S 60°40'42.25"E	S57 Encoding	DOCARE (A) LNDARE (L, P)	
Screen Capture				
Expected Test Results	T0055: A warning "Point LNDARE lies on land" must not be triggered.			
Secondary Errors	T1672: An additional error "Object with the same attributes WITHIN an identical object" must be triggered.			
Test Case No. 5	LNDARE (L, P) overlapping LOKBSN.			
Location	32°23'45.60"S 60°40'33.96"E	S57 Encoding	LOKBSN (A) LNDARE (L, P)	
Screen Capture				
Expected Test Results	T0055: A warning "Point LNDARE lies on land" must not be triggered.			
Secondary Errors	T1672: An additional error "Object with the same attributes WITHIN an identical object" must be triggered.			
Test Case No. 6	LNDARE (L, P) overlapping CANALS.			
Location	32°23'39.20"S 60°40'49.22"E	S57 Encoding	CANALS (A) LNDARE (L, P)	

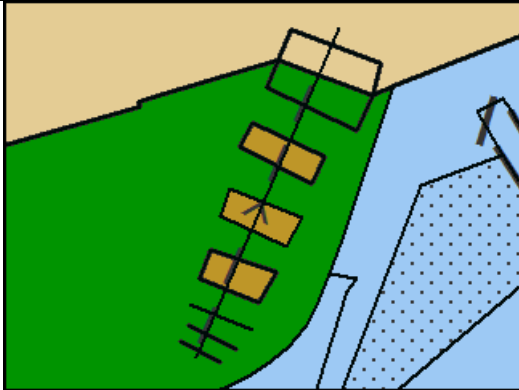
Screen Capture					
Expected Test Results	T0055: A warning “Point LNDARE lies on land” must not be triggered.				
Secondary Errors	T1672: An additional error “Object with the same attributes WITHIN an identical object” must be triggered.				
Dataset Name	AA500001	S-58 test No.	T0056	Type	E
S-58 Description	For each BUAARE object not WITHIN a LNDARE object of type area or which is COINCIDENT with a LNDARE object of type point or line.				
Message	BUAARE not located on LNDARE.				
Solution	Amend BUAARE so that it sits on LNDARE.		Conformity	Logical consistency	
Test Case No. 1	BUAARE (A, P) overlapping DEPAARE (A).				
Location	32°23'21.91"S 60°40'58.16"E	S57 Encoding	BUAARE (A, P)		
Screen Capture					
Expected Test Results	T0056: 2errors “BUAARE not located on LNDARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0057	Type	E
S-58 Description	For each COALNE object which is not COINCIDENT with a LNDARE or SLCONS object with CONDTN=1 or 3 or 5 or is WITHIN a LNDARE object of type area or is COINCIDENT with LNDARE objects on both sides.				
Message	COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects.				
Solution	Ensure COALNE touches or lies WITHIN or touching LNDARE.		Conformity	Logical consistency	

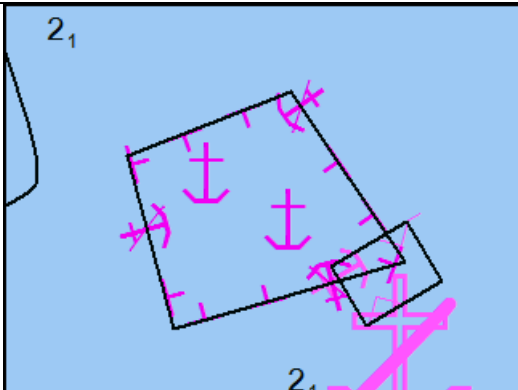
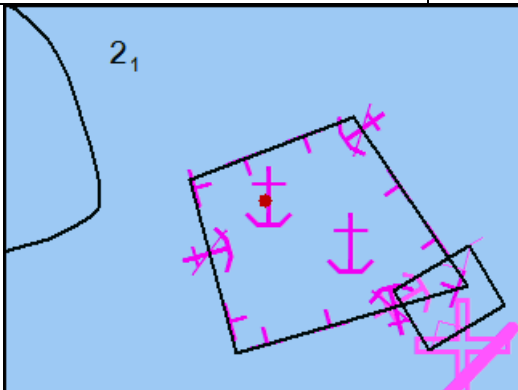
Test Case No. 1	COALNE overlapping LNDARE (A).				
Location	32°23'47.09"S 60°40'58.42"E	S57 Encoding	COALNE (L) LNDARE (A)		
Screen Capture					
Expected Test Results	T0057: An error “COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects” must be triggered.				
Secondary Errors	None				
Test Case No. 2	COALNE between two LNDARE (A) objects.				
Location	32°23'47.26"S 60°40'58.12"E	S57 Encoding	COALNE (L) LNDARE (A)		
Screen Capture					
Expected Test Results	T0057: An error “COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0060	Type	W
S-58 Description	For each CBLSUB object INTERSECTS a LNDARE object of type Area.				
Message	CBLSUB lies on land.				
Solution	Amend CBLSUB object accordingly.		Conformity	Logical consistency	
Test Case No. 1	CBLSUB overlapping LNDARE (A).				
Location	32°22'13.74"S 60°43'09.53"E	S57 Encoding	CBLSUB (L) LNDARE (A)		

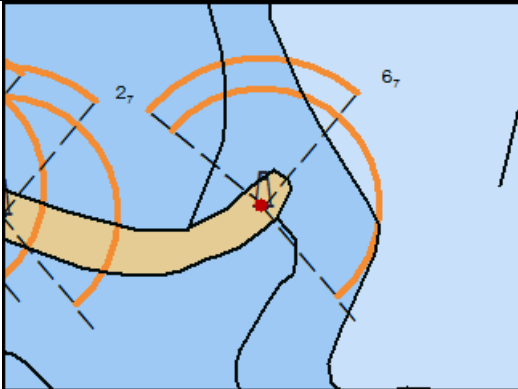
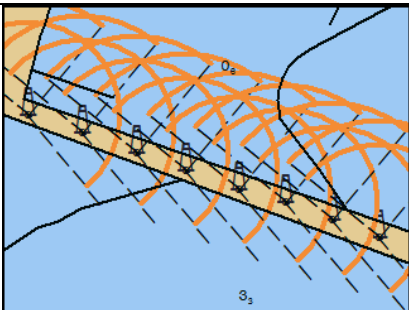
Screen Capture					
Expected Test Results	T0060: A warning “CBLSUB lies on land” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0061a	Type	E
S-58 Description	For each object of type line or area where WATLEV = 3 [always underwater/submerged] which OVERLAPS or is WITHIN an inter-tidal area (DEPARE with DRVAL2 ≤0) OR LNDARE object of type area.				
Message	Line or area object which is WATLEV = 3 [always underwater/submerged] lies WITHIN or overlapping an inter-tidal area (DEPARE with DRVAL2 ≤ 0) or land area.				
Solution	Amend value of WATLEV.		Conformity	Logical consistency	
Test Case No. 1	OBSTRN (L) in intertidal area. OBSTRN (L) on land area. OBSTRN (A) in intertidal area. OBSTRN (A) on land area. OBSTRN (P) in intertidal area. OBSTRN (P) on land area.				
Location	32°23'45.63"S 60°40'59.92"E	S57 Encoding	OBSTRN (L) OBSTRN (A)	WATLEV=3 WATLEV=3	
Screen Capture					
Expected Test Results	T0061a: 4 errors “Line or area object which is WATLEV = 3 [always underwater/submerged] lies WITHIN or overlapping an inter-tidal area (DEPARE with DRVAL2 ≤ 0) or land area” must be triggered.				
Secondary Errors	None				

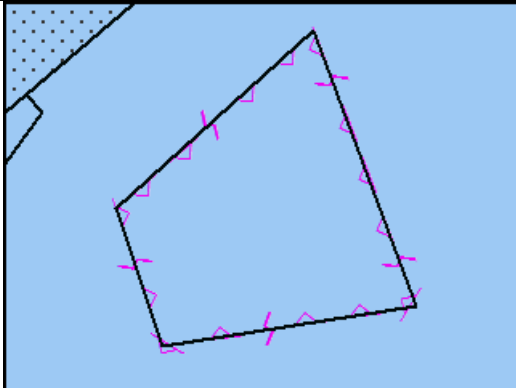
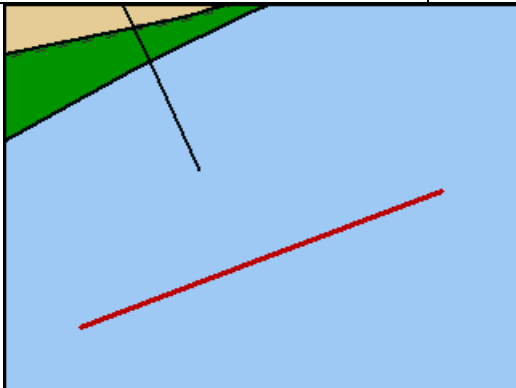
Dataset Name	AA500001	S-58 test No.	T0061b	Type	E
S-58 Description	For each object of type point where WATLEV = 3 [always underwater/submerged] which is WITHIN an inter-tidal (DEPARE with DRVAL2 ≤0) area OR is WITHIN a LNDARE of type area OR EQUALS a LNDARE of type point or is situated on a LNDARE of type line.				
Message	Point object which is WATLEV = 3 [always underwater/submerged] lies WITHIN an inter-tidal area (DEPARE with DRVAL2 ≤ 0) or is WITHIN or coincident with a land area object.				
Solution	Amend value of WATLEV.		Conformity	Logical consistency	
Test Case No. 1	OBSTRN (P) in intertidal area. OBSTRN (P) on LNDARE (A). OBSTRN (P) on LNDARE (L). OBSTRN (P) on LNDARE (P).				
Location	32°23'44.62"S 60°40'59.79"E	S57 Encoding	OBSTRN (P)	WATLEV=3	
Screen Capture					
Expected Test Results	T0061b: 4 errors “Point object which is WATLEV = 3 [always underwater/submerged] lies WITHIN an inter-tidal area (DEPARE with DRVAL2 ≤ 0) or is WITHIN or coincident with a land area object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0062	Type	W
S-58 Description	For each PONTON, HULKES or FLODOC object of type area where any edge shares the geometry of a line COALNE or SLCONS object AND the edge does not also share the geometry of a LNDARE object of type area.				
Message	PONTON, HULKES or FLODOC which uses an SLCONS or COALNE edge which is not on the edge of LNDARE.				
Solution	Ensure all SLCONS or COALNE objects are backed by LNDARE objects.		Conformity	Logical consistency	
Test Case No. 1	PONTON, HULKES and FLODOC areas bounded by SLCONS (L) and COALNE.				
Location	32°23'34.61"S 60°40'55.99"E	S57 Encoding	PONTON (A) HULKES (A) FLODOC (A) COALNE (L) SLCONS (L)	WATLEV = 2	

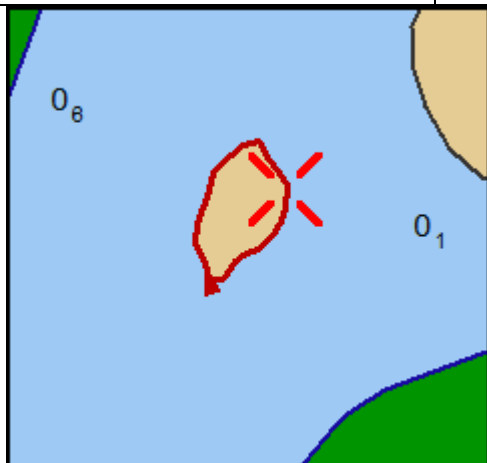
Screen Capture					
Expected Test Results	T0062: 6 warnings "PONTON, HULKES or FLODOC which uses an SLCONS or COALNE edge which is not on the edge of LNDARE" must be triggered.				
Secondary Errors	T0057: 3 additional errors "COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects" must be triggered.				
Test Case No. 2	PONTON (A) bounded by COALNE and one edge shared by LNDARE. PONTON (A) bounded by SLCONS and one edge shared by LNDARE. HULKES (A) bounded by COALNE and one edge shared by LNDARE. HULKES (A) bounded by SLCONS and one edge shared by LNDARE. FLODOC (A) bounded by COALNE and one edge shared by LNDARE. FLODOC (A) bounded by SLCONS and one edge shared by LNDARE.				
Location	32°23'34.50"S 60°41'01.21"E	S57 Encoding	PONTON (A) HULKES (A) FLODOC (A) COALNE (L) SLCONS (L) LNDARE	WATLEV = 2	
Screen Capture					
Expected Test Results	T0062: 6 warnings "PONTON, HULKES or FLODOC which uses an SLCONS or COALNE edge which is not on the edge of LNDARE" must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0063	Type	E
S-58 Description	For each RECTRC object which INTERSECTS line or area objects of the following types LNDARE, PONTON, HULKES, FLODOC OR any object where WATLEV = 1 [partly submerged at high water] or 2 [always dry].				
Message	RECTRC intersects prohibited objects.				

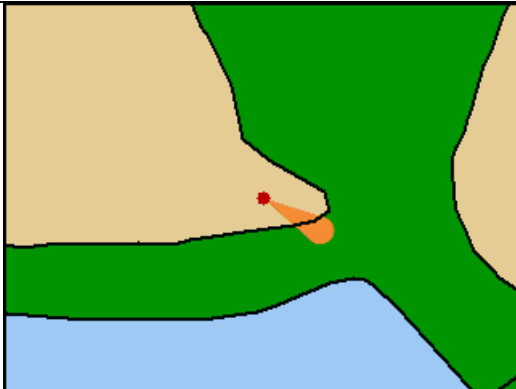
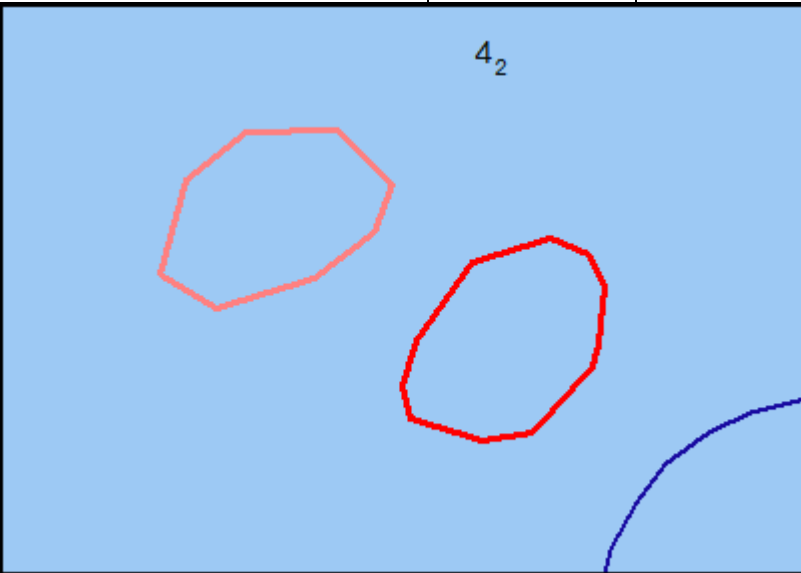
Solution	Amend RECTRC or other objects to ensure RECTRC is WITHIN navigable objects.		Conformity	Logical consistency	
Test Case No. 1	RECTRC overlapping LNDARE, PONTON, HULKES, FLODOC and SLCONS (A).				
Location	32°23'40.46"S 60°42'27.51"E	S57 Encoding	SLCONS (A) SLCONS (A) RECTRC (L) LNDARE (A) PONTON (A) HULKES (A) FLODOC (A) LNDARE (L) PONTON (L) FLODOC (L)	WATLEV = 1 WATLEV = 2	
Screen Capture					
Expected Test Results	T0063: 9 errors “RECTRC intersects prohibited objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0064	Type	W
S-58 Description	For each ACHARE object of type point or area where CATACH does not equal 8 [small craft mooring area] which OVERLAPS another object where RESTRN includes the value 1 [anchoring prohibited].				
Message	ACHARE object WITHIN an area with RESTRN = 1 [anchoring prohibited].				
Solution	Amend ACHARE object or object carrying RESTRN=1.		Conformity	Logical consistency	
Test Case No. 1	ACHARE (A, P) overlapping RESARE.				
Location	32°23'45.56"S 60°43'15.85"E	S57 Encoding	ACHARE (A, P) RESARE (A)	RESTRN = 1	

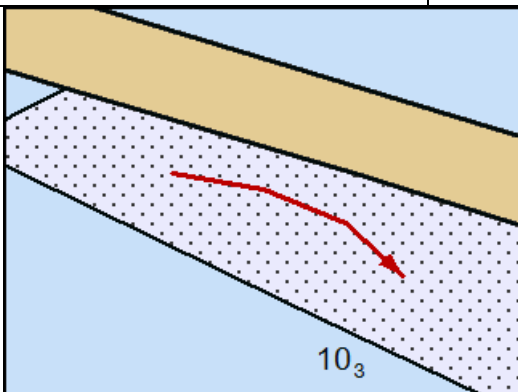
Screen Capture					
Expected Test Results	T0064: 2 warnings “ACHARE object WITHIN an area with RESTRN = 1 [anchoring prohibited]” must be triggered.				
Secondary Errors	None				
Test Case No. 2	ACHARE (P) inside RESARE.				
Location	32°23'44.74"S 60°43'14.15"E	S57 Encoding	RESARE (A) ACHARE (P)	RESTRN = 1 CATACH = 8	
Screen Capture					
Expected Test Results	T0064: A warning “ACHARE object WITHIN an area with RESTRN = 1 [anchoring prohibited]” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0065	Type	W
S-58 Description	For each LIGHTS object which EQUALS another LIGHTS object AND STATUS does not equal 4 [not in use], 6 [reserved] or 11 [extinguished] where sectors overlap AND none of the values of the following attributes are different CATLIT, EXCLIT, LITCHR, SIGPER or SIGGRP.				
Message	Coincident lights with overlapping sectors and the same characteristics.				
Solution	Modify light sectors so that they do not overlap, or delete duplicated sectors.		Conformity	Logical consistency	
Test Case No. 1	Two LIGHTS with the same attribute values encoded, with the exception of differing sector values.				
Location	32°23'34.89"S 60°43'16.29"E	S57 Encoding	LIGHTS	COLOUR=1 LITCHR=2 SECTR1=130 SECTR2=220 SIGGRP=(2) SIGPER=6	

			LIGHTS	COLOUR=1 LITCHR=2 SECTR1=130 SECTR2=320 SIGGRP=(2) SIGPER=6
Screen Capture				
Expected Test Results	T0065: A warning "Coincident lights with overlapping sectors and the same characteristics" must be triggered.			
Secondary Errors	None			
Test Case No. 2	8 LIGHTS (2 LIGHTS placed at the same location with overlapping sectors) with differing attribute values: CATLIT, EXCLIT, LITCHR, SIGPER and SIGGRP.			
Location	32°23'34.27"S 60°43'11.63"E	S57 Encoding	LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS LIGHTS	CATLIT=12 CATLIT=13 EXCLIT=2 EXCLIT=3 LITCHR=2 LITCHR=3 SIGGRP=(2) SIGGRP=(3) SIGPER=4 SIGPER=6 STATUS=4 STATUS=4 STATUS=6 STATUS=6 STATUS=11 STATUS=11
Screen Capture				
Expected Test Results	T0065: 8 warnings "Coincident lights with overlapping sectors and the same characteristics" must not be triggered.			
Secondary Errors	None			

Dataset Name	AA500001	S-58 test No.	T0067	Type	E
S-58 Description	For each object where its object class, attribution and geometry is identical to another object.				
Message	Duplicate object exists.				
Solution	Delete duplicate object.		Conformity	Data structure	
Test Case No. 1	Two CBLARE objects with the same geometry, same class and same attribute values.				
Location	32°23'45.85"S 60°42'33.35"E	S57 Encoding	CBLARE (A)	CATCBL=1	
Screen Capture					
Expected Test Results	T0067: An error “Duplicate object exists” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0070a	Type	E
S-58 Description	For each DEPART object of type line which does not EQUAL a Group 1 boundary.				
Message	Hanging' linear depth area of type line.				
Solution	Delete 'hanging' linear DEPART.		Conformity	Logical consistency	
Test Case No. 1	DEPART (L) object inside a DEPART (A).				
Location	32°23'45.20"S 60°41'18.43"E	S57 Encoding	DEPART (L)		
Screen Capture					
Expected Test Results	T0070a: An error “Hanging' linear depth area of type line” must be triggered.				

Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0070b	Type	W
S-58 Description	For each DEPARE objects of type line.				
Message	DEPARE of type line exit in the ENC.				
Solution	Delete linear DEPARE as no longer required in ENC.	Conformity	Logical consistency		
Test Case No. 1	DEPARE (L) object inside a DEPARE (A).				
Location	32°23'28.02"S 60°41'01.50"E	S57 Encoding	DEPARE (L)		
Screen Capture					
Expected Test Results	T0070b: An error “DEPARE of type line exit in the ENC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0072	Type	E
S-58 Description	For each set of hierarchical relationships which form a loop (e.g. no master object is slave of its own slave).				
Message	Relationships form a loop.				
Solution	Amend relationships to remove loop.	Conformity	Logical consistency		
Test Case No. 1	Circular master-slave relationship created between 3 LIGHTS.				
Location	32°23'39.65"S 60°41'30.07"E	S57 Encoding	LIGHTS X3		

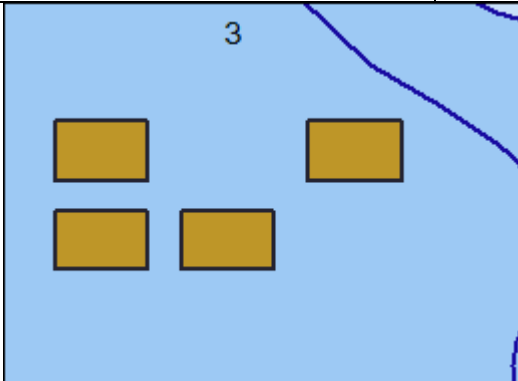
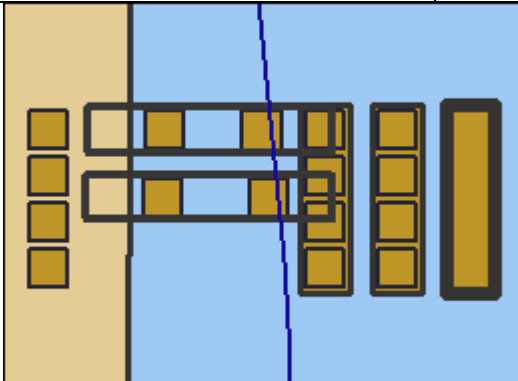
Screen Capture					
Expected Test Results	T0072: 3 errors "Relationships form a loop" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500001	S-58 test No.	T0074	Type	C
S-58 Description	For each DEPCNT object which does not share an edge with a Group 1 object AND is WITHIN an area DEPARE object with DRVAL1 AND DRVAL2 equal to not Null AND DRVAL2 <= VALDCO <= DRVAL1.				
Message	Floating DEPCNT WITHIN a DEPARE with VALDCO less than DRVAL1 or greater than DRVAL2.				
Solution	Amend floating contour VALDCO between DRVAL1 and DRVAL2 of the underlying DEPARE.		Conformity	Logical consistency	
Test Case No. 1	Floating DEPCNT whose value is not within the limits of the surrounding DEPARE.				
Location	32°23'46.37"S 60°42'44.98"E	S57 Encoding	DEPCNT DEPARE	VALDCO=1.8 VALDCO=9.0 DRVAL1=3.6 DRVAL2=5.4	
Screen Capture					
Expected Test Results	T0074: 2 errors "Floating DEPCNT WITHIN a DEPARE with VALDCO less than DRVAL1 or greater than DRVAL2" must be triggered.				
Secondary Errors	T0043: 2 additional warnings "DEPCNT does not coincide with two group 1 objects" must be triggered.				

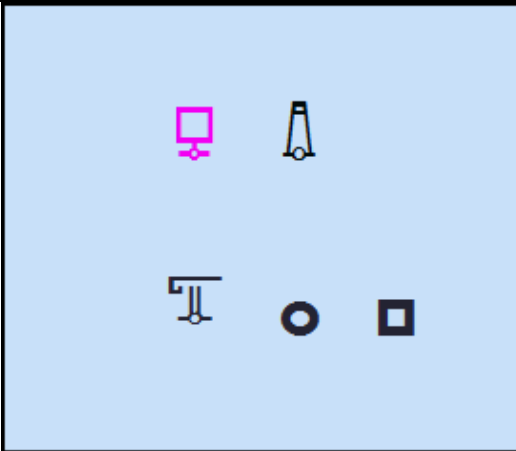
Dataset Name	AA500001	S-58 test No.	T0075	Type	C
S-58 Description	For each DEPCNT object which does not share an edge with a Group 1 object AND is WITHIN an area DRGARE object with DRVAL1 equal to not Null AND VALDCO <= DRVAL1.				
Message	Floating DEPCNT WITHIN a DRGARE with VALDCO less than DRVAL1 of the DRGARE.				
Solution	Amend floating contour VALDCO to be greater than the DRVAL1 of the underlying DRGARE. Or amend DRVAL1 of the DRGARE.	Conformity	Logical consistency		
Test Case No. 1	Floating DEPCNT whose value is not within the limits of the surrounding DRGARE.				
Location	32°23'35.32"S 60°43'27.49"E	S57 Encoding	DEPCNT DRGARE	VALDCO=20 DRVAL1=20	
Screen Capture					
Expected Test Results	T0075: An error “Floating DEPCNT WITHIN a DRGARE with VALDCO less than DRVAL1 of the DRGARE” must be triggered.				
Secondary Errors	None				

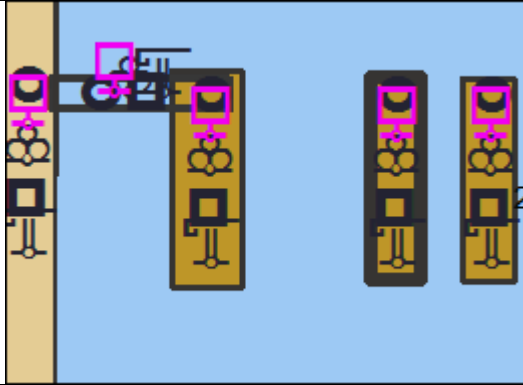
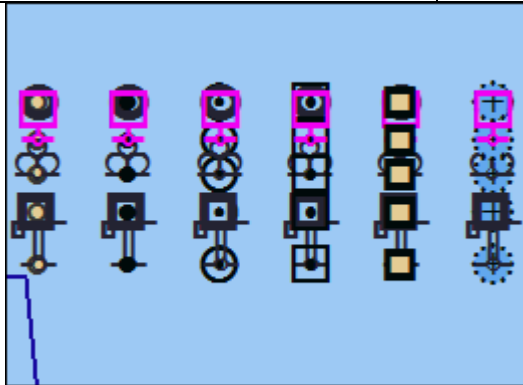
2.2. Test Dataset: AA500002

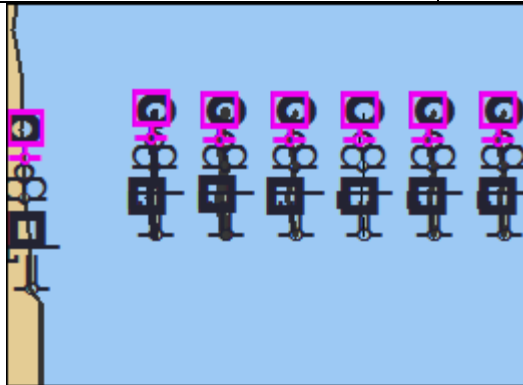
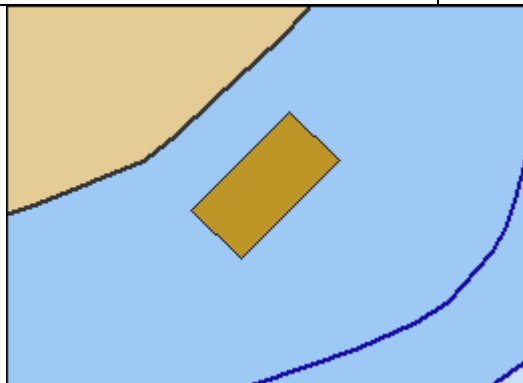
List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
54a	For each CRANES, BUISGL , FORSTC, LNDMRK or SILTNK object of type area that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON object of type area.
54b	For each CRANES, BUISGL , FORSTC, LNDMRK, DAYMAR or SILTNK object of type point that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON object of type area OR it does not EQUAL a LNDARE, PILPNT, PYLONS, OFSPLF, SLCONS or UWTRC of type point OR it is not COINCIDENT with a COALNE, DAMCON, BRIDGE, FLODOC, LNDARE, PONTON or SLCONS of type line.
54c	For each BUISGL object of type area that is not WITHIN a LNDARE, BRIDGE, FLODOC, HRBFAC, OFSPLF, or PONTON object of type area OR for each BUISGL of type point that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON of type area OR it does not EQUAL a LNDARE, PILPNT, PYLONS, OFSPLF, SLCONS or UWTRC of type point OR it is not COINCIDENT with a COALNE, DAMCON, BRIDGE, FLODOC, LNDARE, PONTON or SLCONS of type line.
76	For each DEPCNT object WITHIN a FLODOC, HULKES, LNDARE or PONTON object of type Area.
77	For each object of type DEPCNT which crosses another object of type DEPCNT.
78	For each area object where its boundary CROSSES itself.
79	For each line object where component edges CROSSES without a connected node at the crossing point.
81	For each SOUNDG object which is COINCIDENT another SOUNDG object. (COINCIDENT applies to the horizontal component only).
93a	For each object where WATLEV = 4 [covers and uncovers] or 5 [awash] of type line or area which is WITHIN or OVERLAPS a LNDARE object of type area.
93b	For each object where WATLEV = 4 [covers and uncovers] or 5 [awash] of type point which OVERLAPS a LNDARE object of type area or EQUALS a LNDARE object of type point or is COINCIDENT with a LNDARE object of type line.
500	For each object where its geometry is not WITHIN an M_COVR object where CATCOV=1.
516a	For all master objects of type point which does not EQUAL the slave objects linked in the same master/slave relationship.
516b	For all master objects of type line where the slave object does not OVERLAP the master object.
516c	For all master objects of type area where the slave object is not WITHIN or TOUCHING the master object.
519a	For all objects FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE, UNSARE that their combined coverage EQUALS the data coverage M_COVR CATCOV=1.
519b	For all objects FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE, UNSARE that OVERLAP.
544	If an object OVERLAPS or is WITHIN an area of M_COVR where CATCOV=2.
549	For each DEPARE or DRGARE objects which is not WITHIN combined coverage of M_QUAL objects.
550	For each UNSARE object which CONTAIN or OVERLAP the following objects DEPCNT, OBSTRN, SOUNDG, UWTRC or WRECKS and which is not WITHIN combined coverage of M_QUAL objects.
557	For each SIGSEQ attribute value which does not conform to the correct structure (i.e. string content in accordance with format specification).
558	For each object where SIGSEQ is 'not null' and SIGPER is 'not equal to' the sum of the intervals of lit and eclipse given in SIGSEQ.
559a	For all objects where STATUS =1 [permanent] with at least one of 2 [occasional], 5 [periodic/intermittent], 7 [temporary].
559b	For all objects where STATUS =3 [recommended] with at least one of 4 [not in use], 11 [extinguished].
559c	For all objects where STATUS =4 [not in use] with at least one of 5 [periodic/intermittent], 9 [mandatory].
559d	For all objects where STATUS =5 [periodic/intermittent] with 11 [extinguished].
559e	For all objects where STATUS =9 [mandatory] with 11 [extinguished].
559f	For all objects where STATUS =16 [watched] with 17 [un-watched].
559g	For all objects where STATUS =8 [private] with 14 [public].
1524	For each M_QUAL object which is not completely WITHIN a SWPARE object AND where DRVAL1 is not Null.
1565	For each edge of a LNDARE object of type area which is not COINCIDENT with one of the following objects a) COALNE, SLCONS, GATCON, DAMCON of type line. OR b) M_COVR, GATCON, DAMCON, RIVERS, TUNNEL, DRYDOC, CANALS, LAKARE, LOKBSN, DOCARE, LNDARE of type area. OR c) CAUSWY, SLCONS, MORFAC, WRECKS, OBSTRN, PYLONS where WATLEV = 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding].

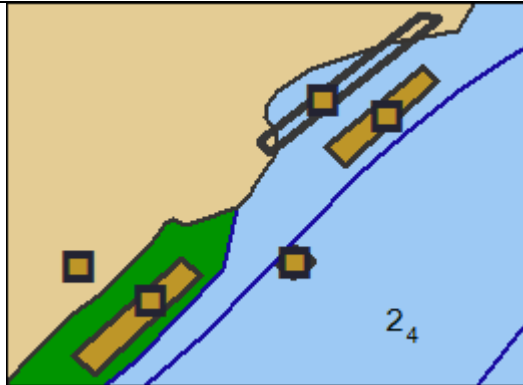
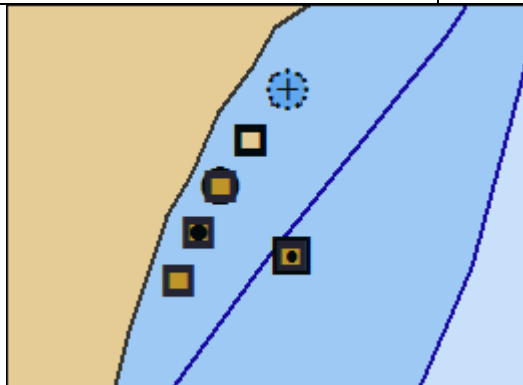
Dataset Name	AA500002	S-58 test No.	T0054a	Type	C
S-58 Description	For each CRANES, BUSGL , FORSTC, LNDMRK or SILTNK object of type area that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON object of type area.				
Message	CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON.				
Solution	Amend object to ensure it is situated on a suitable object.		Conformity	Logical consistency	
Test Case No. 1	CRANES, FORSTC, LNDMRK and SILTNK overlapping DEPARE (A).				
Location	32°22'07.45"S 60°43'33.15"E	S57 Encoding	CRANES (A) FORSTC (A) LNDMRK (A) SILTNK (A)		
Screen Capture					
Expected Test Results	T0054a: 4 errors “CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON” must be triggered.				
Secondary Errors	None				
Test Case No. 2	CRANES, FORSTC, LNDMRK and SILTNK areas overlapping LNDARE, BRIDGE, FLODOC, OFSPLF and PONTON areas.				
Location	32°23'12.54"S 60°43'44.41"E	S57 Encoding	CRANES (A) FORSTC (A) LNDMRK (A) SILTNK (A) LNDARE (A) BRIDGE (A) FLODOC (A) OFSPLF (A) FLODOC (A)		
Screen Capture					
Expected Test Results	T0054a: 15 errors “CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON" must not be triggered.				

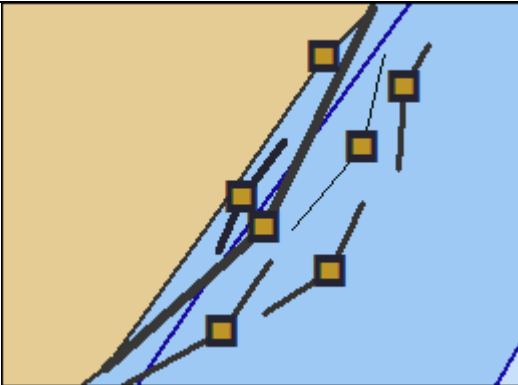
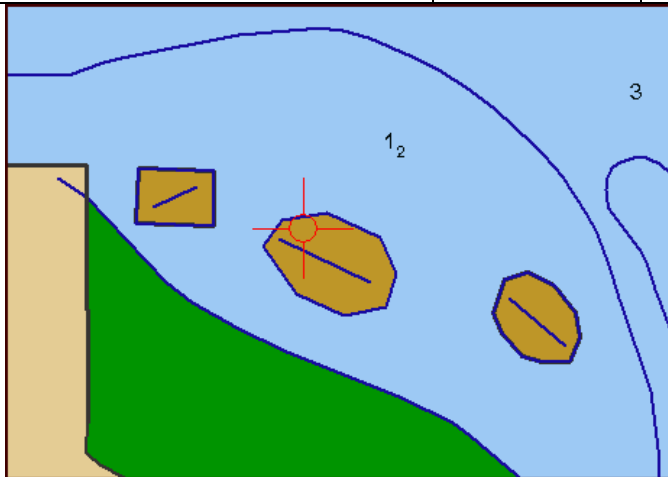
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0054b	Type	C
S-58 Description	For each CRANES, BUSGL , FORSTC, LNDMRK, DAYMAR or SILTNK object of type point that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON object of type area OR it does not EQUAL a LNDARE, PILPNT, PYLONS, OFSPLF, SLCONS or UWTROC of type point OR it is not COINCIDENT with a COALNE, DAMCON, BRIDGE, FLODOC, LNDARE, PONTON or SLCONS of type line.				
Message	CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON.				
Solution	Amend object to ensure it is situated on a suitable object.		Conformity	Logical consistency	
Test Case No. 1	CRANES, FORSTC, LNDMRK, SILTNK and DAYMAR objects overlapping DEPAE (A).				
Location	32°21'59.99"S 60°43'32.77"E	S57 Encoding	CRANES (P) FORSTC (P) LNDMRK (P) SILTNK (P) DAYMAR (P)		
Screen Capture					
Expected Test Results	T0054b: 5 errors “CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON” must be triggered.				
Secondary Errors	T1775: An additional error “Equipment object WITHIN DEPAE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object” must be triggered.				
Test Case No. 2	CRANES (P), FORSTC (P), LNDMRK (P), DAYMAR (P) or SILTNK (P) within a LNDARE (A), BRIDGE (A), FLODOC (A), OFSPLF (A) or PONTON (A).				
Location	32°23'09.57"S 60°43'44.61"E	S57 Encoding	CRANES (P) FORSTC (P) LNDMRK (P) SILTNK (P) DAYMAR (P) LNDARE (A) BRIDGE (A) FLODOC (A) OFSPLF (A) PONTON (A)		

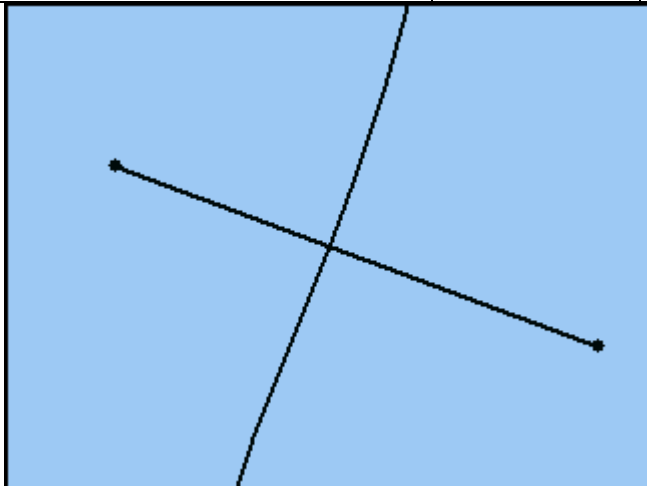
Screen Capture				
Expected Test Results	T0054b: 25 errors "CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON" must not be triggered.			
Secondary Errors	None			
Test Case No. 3	CRANES (P), FORSTC (P), LNDMRK (P), DAYMAR (P) or SILTNK (P) equal to LNDARE (P), PILPNT (P), PYLONS (P), OFSPLF (P), SLCONS (P) or UWTROC (P).			
Location	32°23'10.63"S 60°43'45.20"E	S57 Encoding	CRANES (P) FORSTC (P) LNDMRK (P) SILTNK (P) DAYMAR (P) LNDARE (P) PYLONS (P) PILPNT (P) OFSPLF (P) SLCONS (P) UWTROC (P)	
Screen Capture				
Expected Test Results	T0054b: 25 errors "CRANES, BUSGL , FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON" must not be triggered.			
Secondary Errors	T1775: An additional error "Equipment object WITHIN DEPAARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object" must be triggered.			
Test Case No. 4	CRANES (P), FORSTC (P), LNDMRK (P), DAYMAR (P) or SILTNK (P) coincident with a COALNE (L), DAMCON (L), BRIDGE (L), FLODOC (L), LNDARE (L), PONTON (L) or SLCONS (L).			
Location	32°23'07.76"S 60°43'44.95"E	S57 Encoding	CRANES (P) FORSTC (P) LNDMRK (P) SILTNK (P) DAYMAR (P) COALNE (L)	

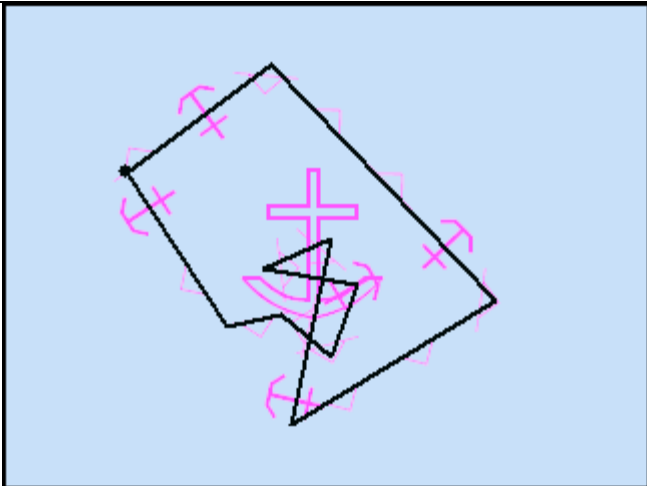
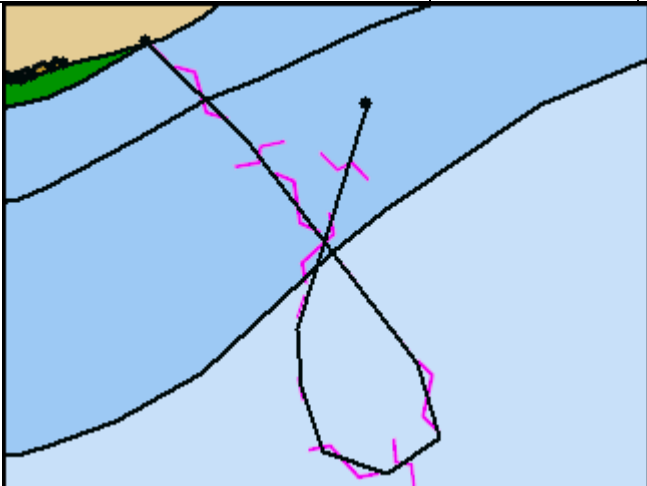
			DAMCON (L) BRIDGE (L) FLODOC (L) LNDARE (L) PONTON (L) SLCONS (L)		
Screen Capture					
Expected Test Results	T0054b: 25 errors “CRANES, BUISGL, FORSTC, LNDMRK or SILTNK not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON” must not be triggered.				
Secondary Errors	T1775: An additional error “Equipment object WITHIN DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0054c	Type	W
S-58 Description	For each BUISGL object of type area that is not WITHIN a LNDARE, BRIDGE, FLODOC, HRBFAC, OFSPLF, or PONTON object of type area OR for each BUISGL of type point that is not WITHIN a LNDARE, BRIDGE, FLODOC, OFSPLF or PONTON of type area OR it does not EQUAL a LNDARE, PILPNT, PYLONS, OFSPLF, SLCONS or UWTROC of type point OR it is not COINCIDENT with a COALNE, DAMCON, BRIDGE, FLODOC, LNDARE, PONTON or SLCONS of type line.				
Message	BUISGL not situated on a suitable supporting object.				
Solution	Amend object to ensure it is situated on a suitable object.		Conformity	Logical consistency	
Test Case No. 1	BUISGL (A) on DEPARE (A).				
Location	32°22'45.11"S 60°45'55.86"E	S57 Encoding	BUISGL (A)		
Screen Capture					
Expected Test Results	T0054c: A warning “BUISGL not situated on a suitable supporting object” must be triggered.				
Secondary Errors	None				
Test Case No. 2	BUISGL (A) within a LNDARE (A), BRIDGE (A), FLODOC (A), HRBFAC (A), OFSPLF (A) or PONTON (A).				
Location	32°22'47.09"S 60°45'53.90"E	S57 Encoding	BUISGL (A) LNDARE (A)		

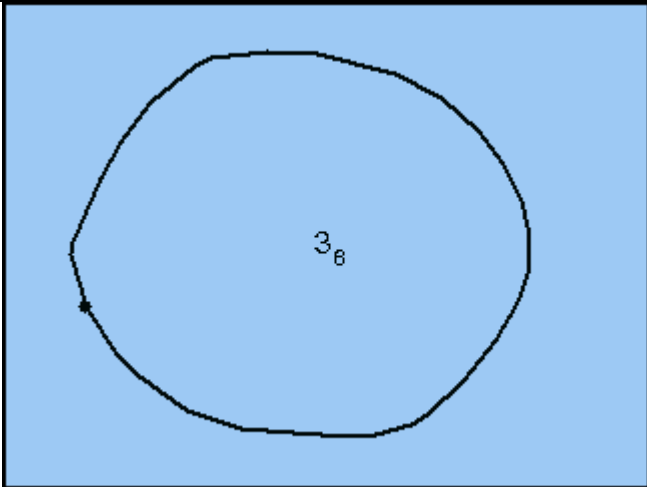
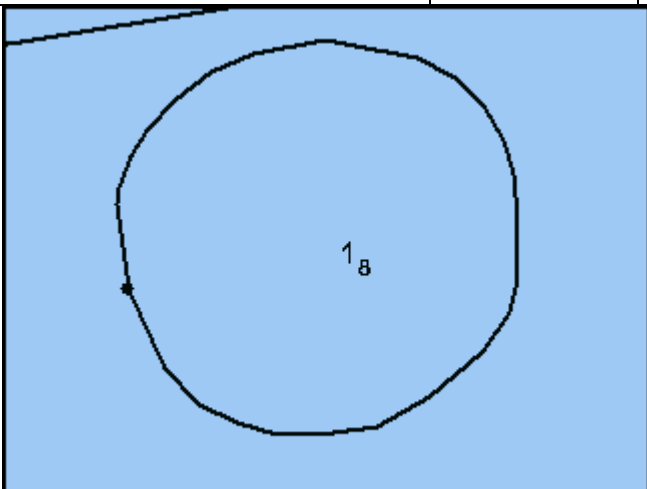
			BRIDGE (A) FLODOC (A) OFSPLF (A) PONTON (A)	
Screen Capture				
Expected Test Results	T0054c: 5 warnings "BUISGL not situated on a suitable supporting object" must not be triggered.			
Secondary Errors	None			
Test Case No. 3	BUISGL (P) inside a DEPARE (A).			
Location	32°22'42.41"S 60°45'58.02"E	S57 Encoding	BUISGL (P)	
Screen Capture				
Expected Test Results	T0054c: A warning "BUISGL not situated on a suitable supporting object" must be triggered.			
Secondary Errors	None			
Test Case No. 4	BUISGL (P) within a LNDARE (A), BRIDGE (A), FLODOC (A), OFSPLF (A) or PONTON (A).			
Location	32°22'39.79"S 60°46'01.86"E	S57 Encoding	BUISGL (P) LNDARE (A) BRIDGE (A) FLODOC (A) OFSPLF (A) PONTON (A)	

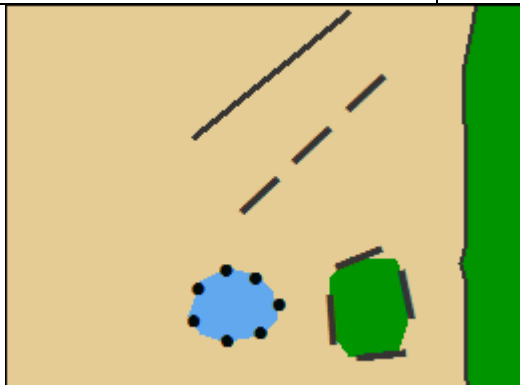
Screen Capture				
Expected Test Results	T0054c: 5 warnings “BUISSL not situated on a suitable supporting object” must not be triggered.			
Secondary Errors	None			
Test Case No. 5	BUISSL (P) that is on a LNDARE (P), PILPNT (P), PYLONS (P), OFSPLF (P), SLCONS (P) or UWTROC (P).			
Location	32°22'34.09"S 60°46'07.33"E	S57 Encoding	BUISSL (P) LNDARE (P) BRIDGE (P) FLODOC (P) OFSPLF (P) PONTON (P)	
Screen Capture				
Expected Test Results	T0054c: 6 warnings “BUISSL not situated on a suitable supporting object” must not be triggered.			
Secondary Errors	None			
Test Case No. 6	BUISSL (P) which is coincident with a COALNE (L), DAMCON (L), BRIDGE (L), FLODOC (L), LNDARE (L), PONTON (L) or SLCONS (L).			
Location	32°22'36.23"S 60°46'05.93"E	S57 Encoding	BUISSL (P) COALNE (L) DAMCON (L) BRIDGE (L) FLODOC (L) LNDARE (L) PONTON (L) SLCONS (L)	

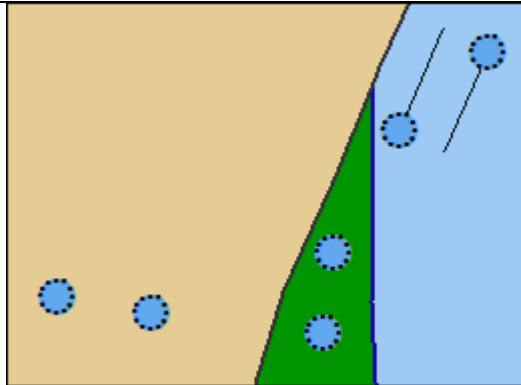
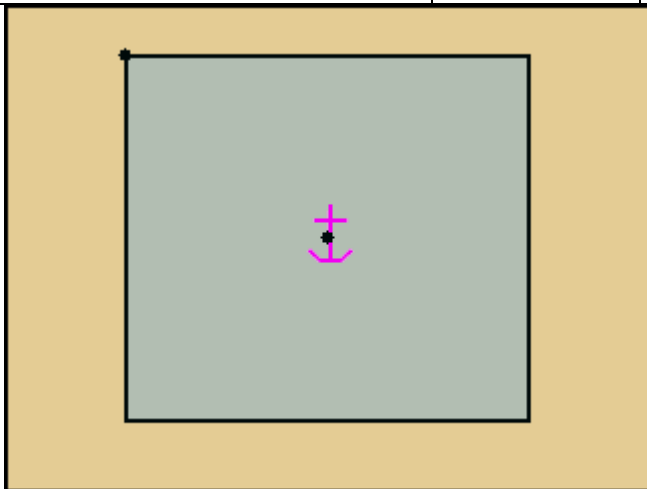
Screen Capture					
Expected Test Results	T0054c: 7 warnings “BUISSL not situated on a suitable supporting object” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0076	Type	E
S-58 Description	For each DEPCNT object WITHIN a FLODOC, HULKES, LNDARE or PONTON object of type Area.				
Message	DEPCNT within prohibited objects.				
Solution	Amend DEPCNT to be within appropriate objects.		Conformity	Logical consistency	
Test Case No. 1	DEPCNT inside FLODOC. DEPCNT inside HULKES. DEPCNT inside LNDARE. DEPCNT inside PONTON.				
Location	32°22'36.74"S 60°43'46.83"E	S57 Encoding	DEPCNT (L) FLODOC (A) HULKES (A) PONTON (A) LNDARE (A)	VALDCO=0	
Screen Capture					
Expected Test Results	T0076: 4 errors “DEPCNT within prohibited objects” must be triggered.				
Secondary Errors	T0043: 4 additional warnings “DEPCNT does not coincide with two group 1 objects” must be triggered.				

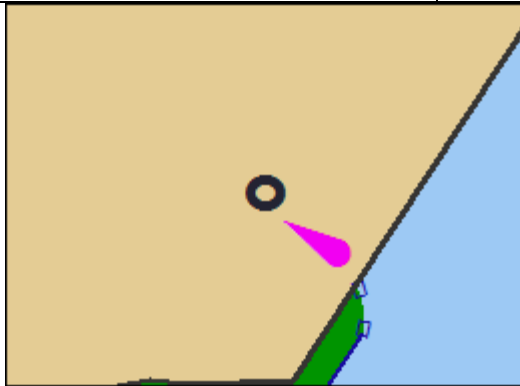
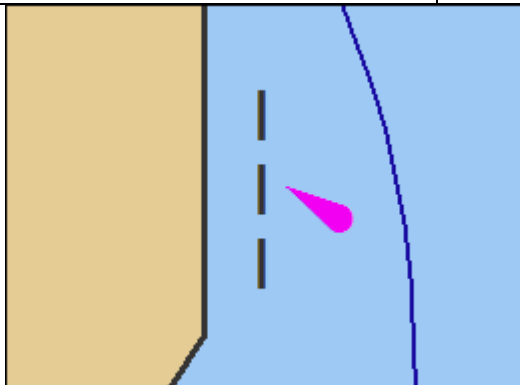
Dataset Name	AA500002	S-58 test No.	T0077	Type	C
S-58 Description	For each object of type DEPCNT which crosses another object of type DEPCNT				
Message	DEPCNT objects cross.				
Solution	Amend DEPCNT objects so they do not cross.	Conformity	Logical consistency		
Test Case No. 1	DEPCNT lines overlapping.				
Location	32°22'24.54"S 60°43'42.38"E	S57 Encoding	DEPCNT (L)		
Screen Capture					
Expected Test Results	T0077: 2 errors “DEPCNT objects cross” must be triggered.				
Secondary Errors	T0043: An additional warning “DEPCNT does not coincide with two group 1 objects” must be triggered. T0074: 2 additional errors “Floating DEPCNT WITHIN a DEPCNT with VALDCO less than DRVAL1 or greater than DRVAL2” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0078	Type	C
S-58 Description	For each area object where its boundary CROSSES itself.				
Message	Boundary of an area object crosses itself.				
Solution	Amend boundary to remove part which crosses itself.	Conformity	Logical consistency		
Test Case No. 1	ACHARE (A) is self-crossing.				
Location	32°23'00.57"S 60°43'55.06"E	S57 Encoding	ACHARE (A)		

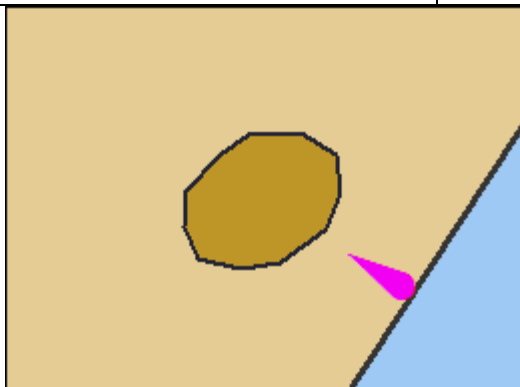

Screen Capture					
Expected Test Results	T0078: An error “Boundary of an area object crosses itself” must be triggered.				
Secondary Errors	T0080c: An additional error “External boundary WITHIN an internal boundary” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0079	Type	E
S-58 Description	For each line object where component edges CROSSES without a connected node at the crossing point				
Message	Component edges of a line object cross without a connected node at the crossing point.				
Solution	Insert connected node at crossing point.		Conformity	Topology	
Test Case No. 1	CBLSUB (L) is self-crossing.				
Location	32°23'28.19"S 60°43'37.52"E	S57 Encoding	CBLSUB (L)		
Screen Capture					
Expected Test Results	T0079: An error “Component edges of a line object cross without a connected node at the crossing point” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0081	Type	E

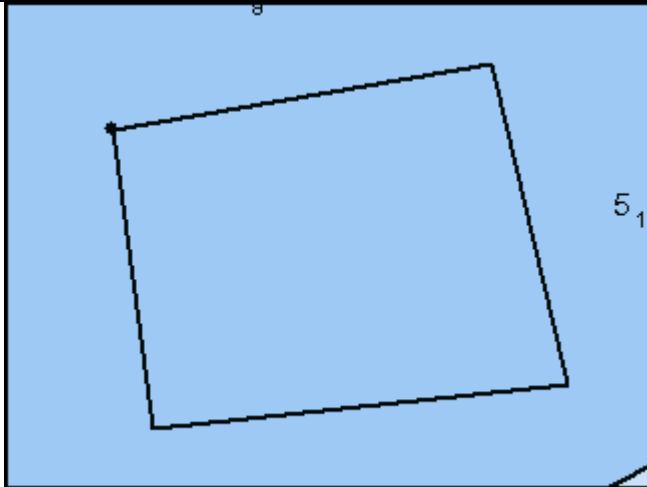
S-58 Description	For each SOUNDG object which is COINCIDENT another SOUNDG object. (COINCIDENT applies to the horizontal component only).				
Message	SOUNDG objects are coincident.				
Solution	Delete coincident SOUNDG objects		Conformity	Topology	
Test Case No. 1	Two SOUNDG objects with the same value, located at the same position.				
Location	32°22'29.75"S 60°43'44.81"E	S57 Encoding	SOUNDG	Depth = 3.6	
Screen Capture					
Expected Test Results	T0081: An error “SOUNDG objects are coincident” must be triggered.				
Secondary Errors	T0067: An additional error “Duplicate object exists” must be triggered.				
Test Case No. 2	Two SOUNDG objects with different values, located at the same position.				
Location	32°22'32.94"S 60°43'36.70"E	S57 Encoding	SOUNDG	Depths are 1.5 and 1.8m	
Screen Capture					
Expected Test Results	T0081: An error “SOUNDG objects are coincident” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0093a	Type	E

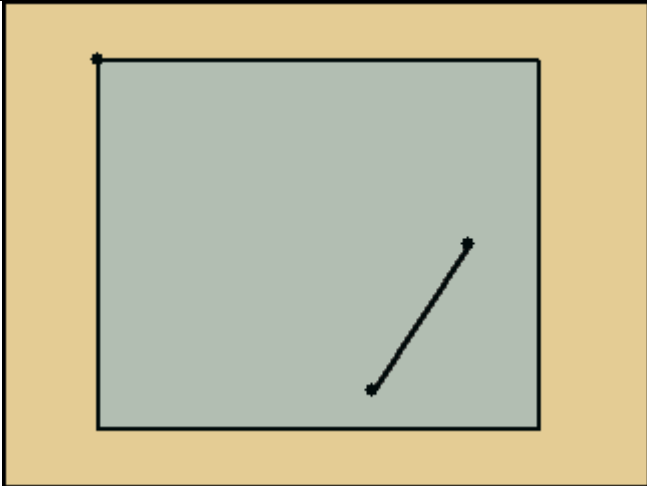
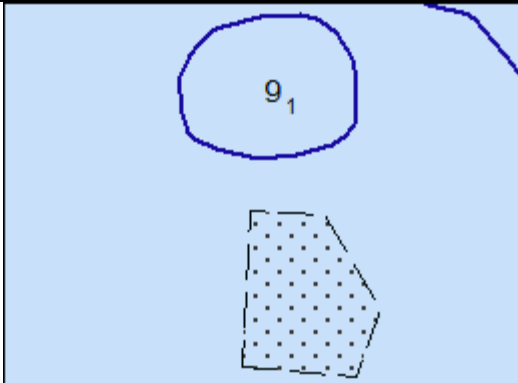
S-58 Description	For each object where WATLEV = 4 [covers and uncovers] or 5 [awash] of type line or area which OVERLAPS a LNDARE object of type area.				
Message	Object with WATLEV 4 or 5 on a LNDARE object.				
Solution	Amend LNDARE object to ensure object is within inter-tidal zone.	Conformity		Logical consistency	
Test Case No. 1	SLCONS (L) on LNDARE (A). OBSTRN (A) on LNDARE (A).				
Location	32°22'52.40"S 60°43'41.83"E	S57 Encoding	SLCONS (L) SLCONS (L) OBSTRN (A) OBSTRN (A)	WATLEV = 4 WATLEV = 5 WATLEV = 4 WATLEV = 5	
Screen Capture					
Expected Test Results	T0093a: 4 errors “Object with WATLEV 4 or 5 on a LNDARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0093b	Type	E
S-58 Description	For each object where WATLEV = 4 [covers and uncovers] or 5 [awash] of type point which OVERLAPS a LNDARE object of type area or EQUALS a LNDARE object of type point or is COINCIDENT with a LNDARE object of type line.				
Message	Object with WATLEV 4 or 5 on a LNDARE object.				
Solution	Amend LNDARE object to ensure object is within inter-tidal zone.	Conformity		Logical consistency	
Test Case No. 1	OBSTRN (P) on LNDARE (A). OBSTRN (P) on LNDARE (P). OBSTRN (P) on LNDARE (L).				
Location	32°22'51.69"S 60°43'44.29"E	S57 Encoding	OBSTRN (P) X3 OBSTRN (P) X3 LNDARE (L) LNDARE (P)	WATLEV = 4 WATLEV = 5	

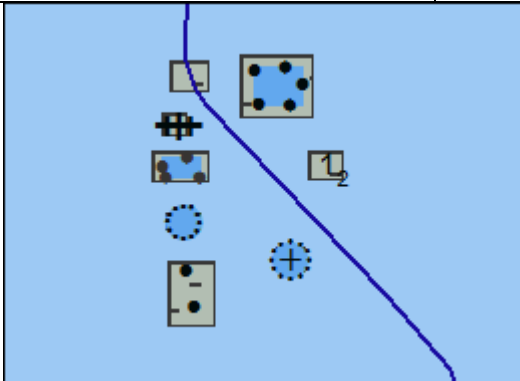
Screen Capture					
Expected Test Results	T0093b: 12 errors “Object with WATLEV 4 or 5 on a LNDARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0500	Type	C
S-58 Description	For each object where its geometry is not within an M_COVR object where CATCOV=1.				
Message	Objects fall outside the coverage object.				
Solution	Ensure objects are not outside of the limits of the cell.	Conformity	2.2		
Test Case No. 1	ACHARE (P) inside a 'no coverage' area.				
Location	32°22'59.82"S 60°43'36.51"E	S57 Encoding	M_COVR (A) ACHARE (P)	CATCOV=2	
Screen Capture					
Expected Test Results	T0500: An error “Objects fall outside the coverage object” must be triggered.				
Secondary Errors	T0544: An additional error “Object WITHIN an area of no coverage” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0516a	Type	E
S-58 Description	For all master objects of type point which does not EQUAL the slave objects linked in the same master/slave relationship.				
Message	Master and slave point objects do not share the same node.				

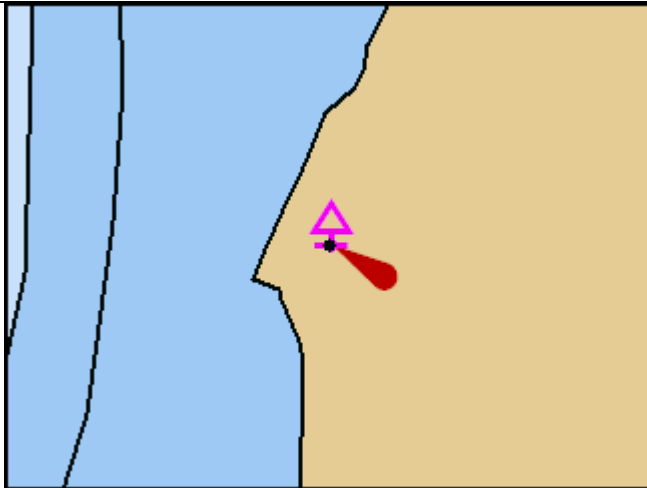
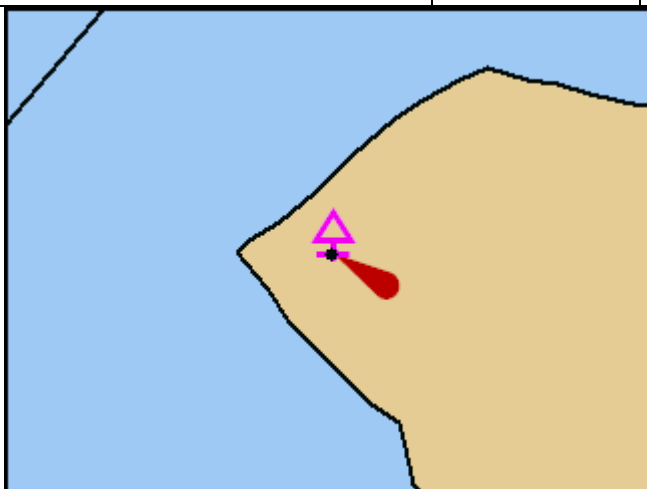
Solution	Ensure master and slave point objects share the same node.		Conformity	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)	
Test Case No. 1	SILTNK (P) with LIGHTS at different spatial positions.				
Location	32°23'24.53"S 60°43'40.02"E	S57 Encoding	SILTNK (P) LIGHTS (P)		
Screen Capture					
Expected Test Results	T0516a: An error “Ensure master and slave point objects share the same node” must be triggered.				
Secondary Errors	T1723: An additional error “Object forming a navigational aid does not point to the same spatial object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0516b	Type	E
S-58 Description	For all master objects of type line where the slave object does not OVERLAP the master object.				
Message	Master and slave line objects do not overlap.				
Solution	Ensure the Master and Slave overlap.		Conformity	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)	
Test Case No. 1	SLCONS (L) with LIGHTS slave at different spatial positions.				
Location	32°23'19.83"S 60°43'44.06"E	S57 Encoding	SLCONS (L) LIGHTS (P)		
Screen Capture					
Expected Test Results	T0516b: An error “Master and slave line objects do not overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0516c	Type	E

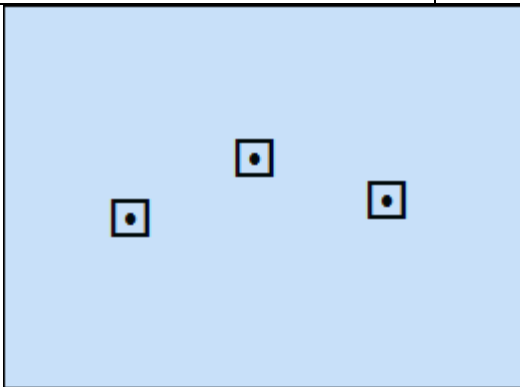
S-58 Description	For all master objects of type area where the slave object is not WITHIN or TOUCHING the master object.				
Message	Slave object of type area does not touch or fall WITHIN the master object.				
Solution	Ensure the Slave object touches or lies WITHIN the Master.	Conformity	3.9 and Appendix B1, Annex A (12.1.1 & 12.1.2)		
Test Case No. 1	SILTNK (A) with LIGHTS slave at different spatial positions.				
Location	32°23'22.65"S 60°43'41.21"E	S57 Encoding	SILTNK (A) LIGHTS (P)		
Screen Capture					
Expected Test Results	T0516c: An error “Slave object of type area does not touch or fall WITHIN the master object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0519a	Type	C
S-58 Description	For all objects FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE, UNSARE that their combined coverage EQUALS the data coverage M_COVR CATCOV=1.				
Message	Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1).				
Solution	Adjust TG1 object limits to match data coverage.	Conformity	3.10.1.		
Test Case No. 1	UNSARE inside DEPARE (A).				
Location	32°21'56.84"S 60°46'28.45"E	S57 Encoding	UNSARE (A)		
Screen Capture					
Expected Test Results	T0519a: 2 errors “Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1)” must be triggered.				

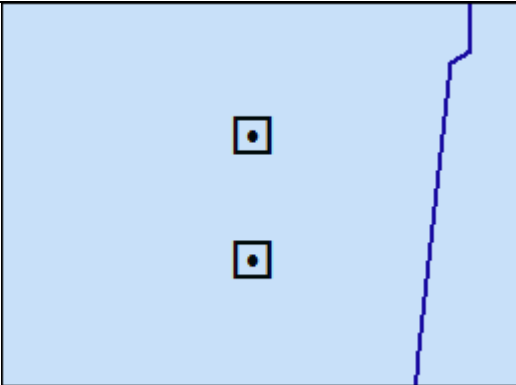
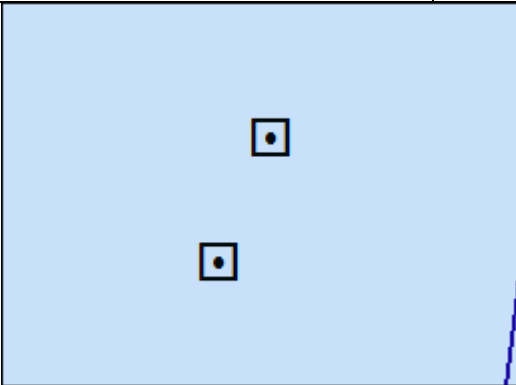
Secondary Errors	T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0519b	Type	C
S-58 Description	For all objects FLODOC, DRGARE, LNDARE, HULKES, PONTON, DEPARE, UNSARE that OVERLAP.				
Message	Skin of the earth (TG1) objects overlap.				
Solution	Ensure TG1 objects do not overlap.		Conformity	3.10.1.	
Test Case No. 1	UNSARE inside DEPARE (A).				
Location	32°22'23.07"S 60°43'51.68"E	S57 Encoding	UNSARE (A)		
Screen Capture					
Expected Test Results	T0519b: 2 errors “Skin of the earth (TG1) objects overlap” must be triggered.				
Secondary Errors	T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0544	Type	C
S-58 Description	If an object OVERLAPS or is WITHIN an area of M_COVR where CATCOV=2.				
Message	Object within an area of no coverage.				
Solution	Remove object or amend coverage.		Conformity	2.2	
Test Case No. 1	SLCONS (L) inside 'no coverage' area.				
Location	32°22'42.10"S 60°43'39.05"E	S57 Encoding	M_COVR (A) SLCONS (L)	CATCOV=2	

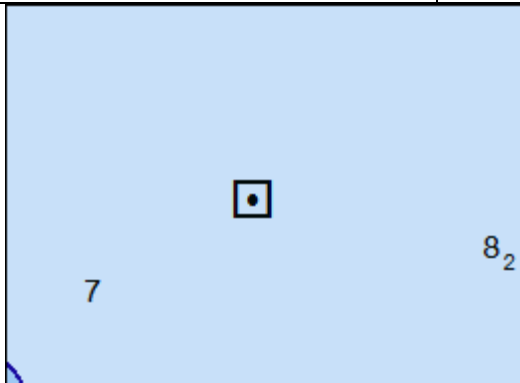
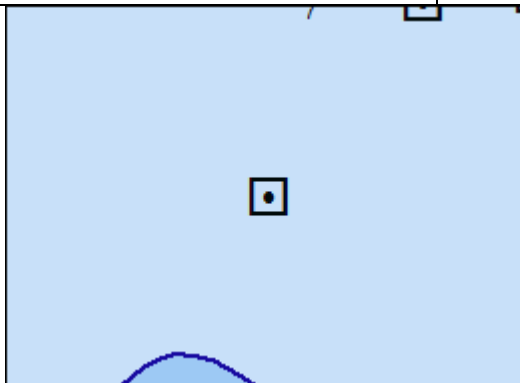
Screen Capture					
Expected Test Results	T0544: An error “Object within an area of no coverage” must be triggered.				
Secondary Errors	T0019: 5 additional errors “Edge coincides with the edge of data and USAG does not equal 3 {Exterior boundary truncated by the data limit}” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0549	Type	E
S-58 Description	For each DEPARE or DRGARE objects which is not WITHIN combined coverage of M_QUAL objects.				
Message	DEPARE or DRGARE objects not covered by an M_QUAL object.				
Solution	Ensure full coverage of M_QUAL objects over DEPARE or DRGAREs.		Conformity	3.4	
Test Case No. 1	DEPARE, DRGARE not within M_QUAL.				
Location	32°22'06.25"S 60°43'57.50"E	S57 Encoding	M_QUAL (A) DRGARE (A) DEPARE (A)		
Screen Capture					
Expected Test Results	T0549: 2 errors “DEPARE or DRGARE objects not covered by an M_QUAL object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0550	Type	E
S-58 Description	For each UNSARE object which CONTAIN or OVERLAP the following objects DEPCNT, OBSTRN, SOUNDG, UWTROC or WRECKS and which is not WITHIN combined coverage of M_QUAL objects.				

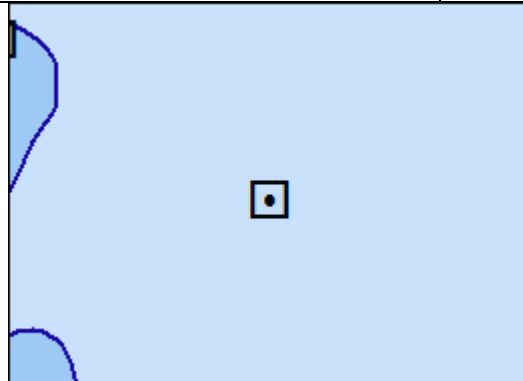
Message	UNSARE containing bathymetric features not completely covered by M_QUAL.				
Solution	Ensure M_QUAL objects completely cover UNSARE objects	Conformity	3.4		
Test Case No. 1	DEPCNT (L), OBSTRN (A, L, P), SOUNDG, UWTROC, WRECKS (A, P) inside UNSARE (A).				
Location	32°22'16.76"S 60°43'40.31"E	S57 Encoding	UNSARE (A) SOUNDG (P) WRECKS (A, P) UWTROC (P) OBSTRN (A, P, L)		
Screen Capture					
Expected Test Results	T0550: 8 errors “UNSARE containing bathymetric features not completely covered by M_QUAL” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0557	Type	E
S-58 Description	For each SIGSEQ attribute value which does not conform to the correct structure (i.e. string content in accordance with format specification).				
Message	SIGSEQ attribute not formatted correctly.				
Solution	Correct formatting of SIGSEQ attribute value.	Conformity	Appendix A Ch.2 (code 143)		
Test Case No. 1	LIGHTS with attribute SIGSEQ encoded.				
Location	32°22'28.07"S 60°45'55.16"E	S57 Encoding	DAYMAR LIGHTS	SIGSEQ=0.4+(03.6)	

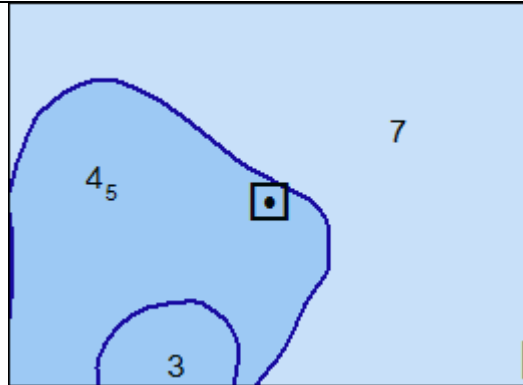
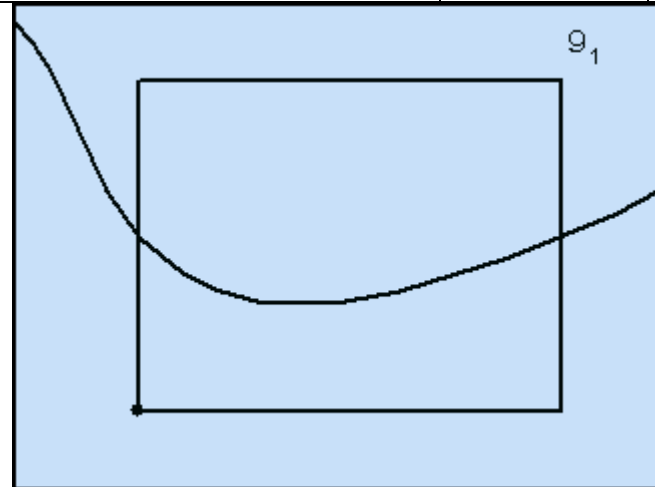
Screen Capture					
Expected Test Results	T0557: An error "SIGSEQ attribute not formatted correctly" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T0558	Type	E
S-58 Description	For each object where SIGSEQ is 'not null' and SIGPER is 'not equal to' the sum of the intervals of lit and eclipse given in SIGSEQ.				
Message	SIGPER does not correspond to SIGSEQ.				
Solution	Ensure SIGPER corresponds to the value of SIGSEQ		Conformity	Appendix A Ch.2 (code 143) and logical consistency	
Test Case No. 1	LIGHTS with attributes SIGSEQ and SIGPER encoded.				
Location	32°22'38.69"S 60°45'45.93"E	S57 Encoding	DAYMAR LIGHTS	SIGPER=1 SIGSEQ=00.4+(03.6)	
Screen Capture					
Expected Test Results	T0558: An error "SIGPER does not correspond to SIGSEQ" must be triggered.				
Secondary Errors	None				

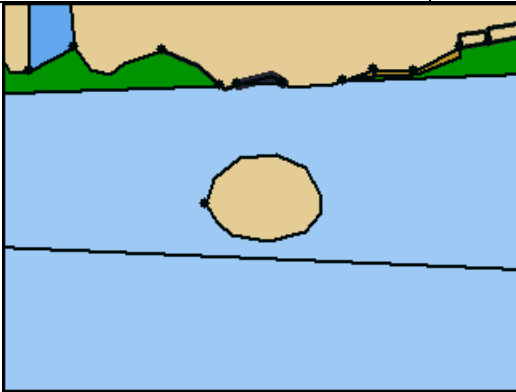
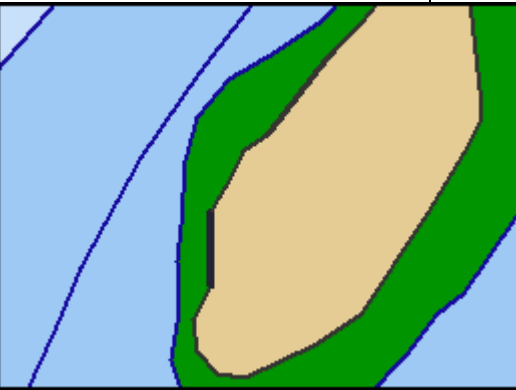
Dataset Name	AA500002	S-58 test No.	T0559a	Type	E
S-58 Description	For all objects where STATUS =1 [permanent] with at least one of 2 [occasional], 5 [periodic/intermittent], 7 [temporary].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.		Conformity	Appendix A Ch.2 (code 149) and logical consistency	
Test Case No. 1	OFSPLF (P) with attributes encoded.				
Location	32°23'04.15"S 60°43'58.55"E	S57 Encoding	OFSPLF (P)	STATUS=1,2 STATUS=1,5 STATUS=1,7	
Screen Capture					
Expected Test Results	T0559a: 3 errors “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0559b	Type	E
S-58 Description	For all objects where STATUS =3 [recommended] with at least one of 4 [not in use], 11 [extinguished].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.		Conformity	Appendix A Ch.2 (code 149) and logical consistency	
Test Case No. 1	OFSPLF (P) with attribute values encoded.				
Location	32°23'07.85"S 60°44'08.52"E	S57 Encoding	OFSPLF (P)	STATUS=3,4 STATUS=3,11	

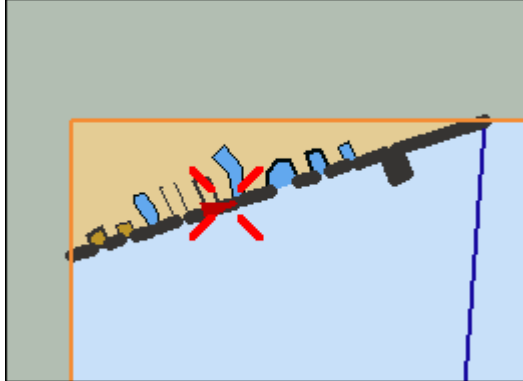

Screen Capture					
Expected Test Results	T0559b: 2 errors “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0559c	Type	E
S-58 Description	For all objects where STATUS =4 [not in use] with at least one of 5 [periodic/intermittent], 9 [mandatory].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.		Conformity	Appendix A Ch.2 (code 149) and logical consistency	
Test Case No. 1	OF SPLF (P) with attribute values encoded.				
Location	32°23'13.97"S 60°44'07.21"E	S57 Encoding	OF SPLF (P)	STATUS=4,5 STATUS=4,9	
Screen Capture					
Expected Test Results	T0559c: 2 errors “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0559d	Type	E
S-58 Description	For all objects where STATUS =5 [periodic/intermittent] with 11 [extinguished].				

Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.		Conformity	Appendix A Ch.2 (code 149) and logical consistency	
Test Case No. 1	OFSPLF (P) with attribute values encoded.				
Location	32°23'09.11"S 60°44'01.44"E	S57 Encoding	OFSPLF (P)	STATUS=5,11	
Screen Capture					
Expected Test Results	T0559d: An error “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0559e	Type	E
S-58 Description	For all objects where STATUS =9 [mandatory] with 11 [extinguished].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.		Conformity	Appendix A Ch.2 (code 149) and logical consistency	
Test Case No. 1	OFSPLF (P) with attribute values encoded.				
Location	32°23'07.30"S 60°43'54.67"E	S57 Encoding	OFSPLF (P)	STATUS=9,11	
Screen Capture					
Expected Test Results	T0559e: An error “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				

Dataset Name	AA500002	S-58 test No.	T0559f	Type	E
S-58 Description	For all objects where STATUS =16 [watched] with 17 [un-watched].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.	Conformity	Appendix A Ch.2 (code 149) and logical consistency		
Test Case No. 1	OFSPLF (P) with attribute values encoded.				
Location	32°23'14.06"S 60°44'01.17"E	S57 Encoding	OFSPLF (P)	STATUS=16,17	
Screen Capture					
Expected Test Results	T0559f: An error “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T0559g	Type	E
S-58 Description	For all objects where STATUS =8 [private] with 14 [public].				
Message	Illogical combination of STATUS values.				
Solution	Amend values for STATUS.	Conformity	Appendix A Ch.2 (code 149) and logical consistency		
Test Case No. 1	OFSPLF (P) with attribute values encoded.				
Location	32°23'11.64"S 60°43'56.24"E	S57 Encoding	OFSPLF (P)	STATUS=8,14	

Screen Capture					
Expected Test Results	T0559g: An error “Illogical combination of STATUS values” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500002	S-58 test No.	T1524	Type	E
S-58 Description	For each M_QUAL object which is not completely WITHIN a SWPARE object AND where DRVAL1 is not Null.				
Message	M_QUAL which is not covered by a SWPARE object contains DRVAL1.				
Solution	Remove value of DRVAL1.		Conformity	2.2.3.1	
Test Case No. 1	M_QUAL (A) with attribute DRVAL1 encoded.				
Location	32°23'32.25"S 60°43'36.20"E	S57 Encoding	M_QUAL (A)	DRVAL1=50	
Screen Capture					
Expected Test Results	T1524: An error “M_QUAL which is not covered by a SWPARE object contains DRVAL1” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500002	S-58 test No.	T1565	Type	E
S-58 Description	For each edge of a LNDARE object of type area which is not COINCIDENT with one of the following objects; a) COALNE, SLCONS, GATCON, DAMCON of type line. OR b) M_COVR, GATCON, DAMCON, RIVERS, TUNNEL, DRYDOC, CANALS, LAKARE, LOKBSN, DOCARE,				

	LNDARE of type area. OR c) CAUSWY, SLCONS, MORFAC, WRECKS, OBSTRN, PYLONS where WATLEV = 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding].		
Message	LNDARE not enclosed by appropriate linear or area object.		
Solution	Ensure LNDARE is enclosed by an appropriate object.	Conformity	4.5
Test Case No. 1	LNDARE not enclosed with any of the following objects: a) COALNE, SLCONS, GATCON, DAMCON of type line. OR b) M_COVR, GATCON, DAMCON, RIVERS, TUNNEL, DRYDOC, CANALS, LAKARE, LOKBSN, DOCARE, LNDARE of type area. OR c) CAUSWY, SLCONS, MORFAC, WRECKS, OBSTRN, PYLONS where WATLEV = 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding].		
Location	32°23'27.59"S 60°43'33.13"E	S57 Encoding	LNDARE (A)
Screen Capture			
Expected Test Results	T1565: An error "LNDARE not enclosed by appropriate linear or area object" must be triggered.		
Secondary Errors	None		
Test Case No. 2	LNDARE enclosed with the following (L) objects: COALNE, SLCONS, GATCON, DAMCON.		
Location	32°22'34.05"S 60°45'44.08"E	S57 Encoding	LNDARE (A) COALNE (L) SLCONS (L) GATCON (L) DAMCON (L)
Screen Capture			
Expected Test Results	T1565: 4 errors "LNDARE not enclosed by appropriate linear or area object" must not be triggered.		
Secondary Errors	None		
Test Case No. 3	LNDARE with the following (A) objects: M_COVR, GATCON, DAMCON, RIVERS, TUNNEL, DRYDOC, CANALS, LAKARE, LOKBSN, DOCARE, LNDARE.		

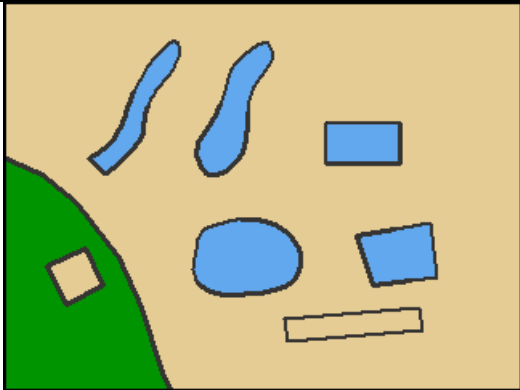
Location	32°21'57.37"S 60°43'32.09"E	S57 Encoding	LNDARE (A) M_COVR (A) GATCON (A) DAMCON (A) RIVERS (A) TUNNEL (A) DRYDOC (A) CANALS (A) LAKARE (A) LOKBSN (A) DOCARE (A) LNDARE (A)	
Screen Capture				
Expected Test Results	T1565: 11 errors "LNDARE not enclosed by appropriate linear or area object" must not be triggered.			
Secondary Errors	None			
Test Case No. 4	LNDARE with the following objects: CAUSWY, SLCONS, MORFAC, WRECKS, OBSTRN, PYLONS where WATLEV = 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding].			
Location	32°22'49.53"S 60°45'42.83"E	S57 Encoding	CAUSWY (A) SLCONS (A) MORFAC (A) WRECKS (A) OBSTRN (A) PYLONS (A)	WATLEV = 1 WATLEV = 2 WATLEV = 6
Screen Capture				
Expected Test Results	T1565: 18 errors "LNDARE not enclosed by appropriate linear or area object" must not be triggered.			
Secondary Errors	T1669: An additional error "OBSTRN object with illogical attribute value combinations" must be triggered.			

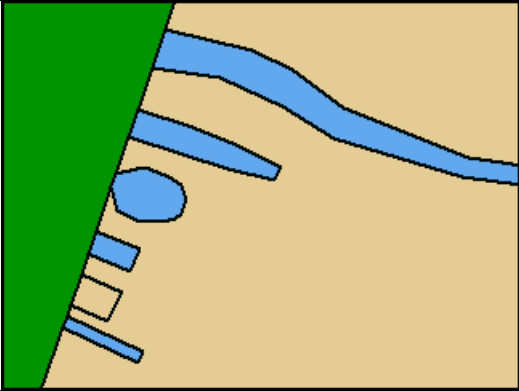
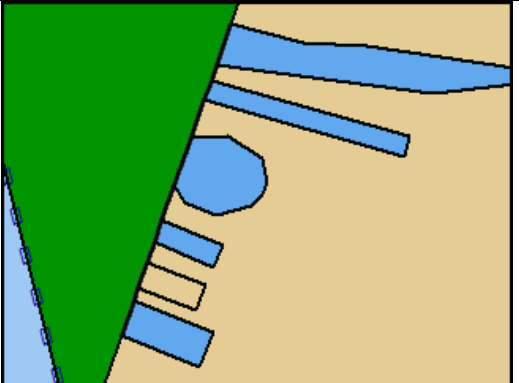
	<p>T2000: 2 additional errors "Attribute value which is not allowed use on an object" must be triggered.</p> <p>T1663: An additional warning "WRECKS object with illogical attribute combination" must be triggered.</p> <p>T1786: An additional error "Area object with WATLEV = (2) but not on an area LNDARE object" must be triggered.</p>
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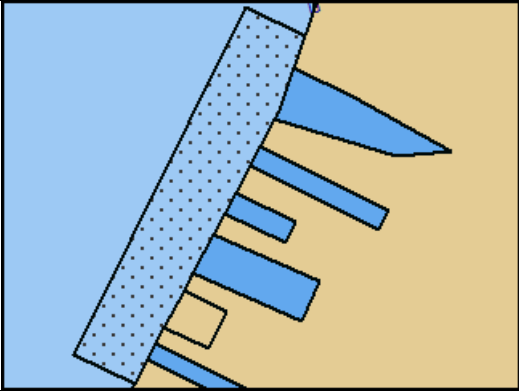
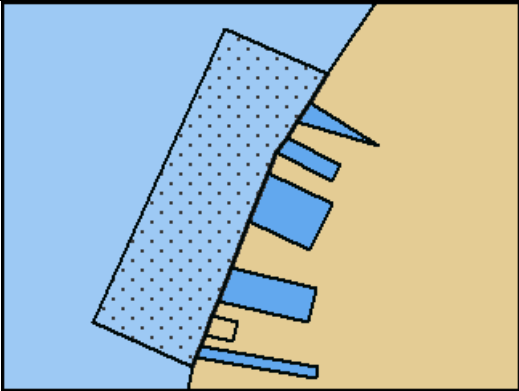
2.3. Test Dataset: AA500003

List of S-58 Recommended ENC Validation Checks covered in this section:

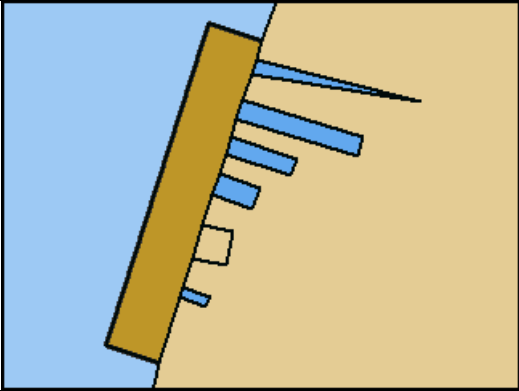
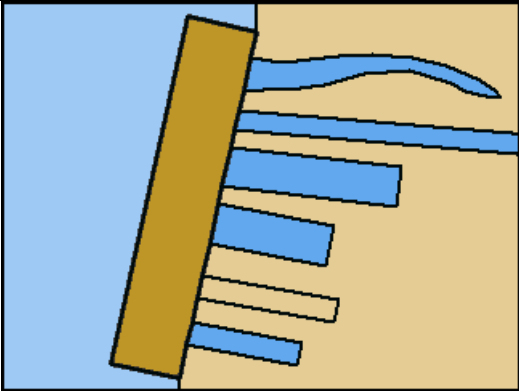
S-58 Test	Description
1566	For each edge of a COALNE object OR SLCONS object of type line which is COINCIDENT with a RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN object AND is not COINCIDENT with a DEPARE, DRGARE, UNSARE, PONTON, FLODOC or HULKES object.
1568	For each SLCONS object of type area which is not WITHIN a LNDARE, DEPARE or UNSARE of type area.
1569	For each SLCONS object of type area where WATLEV = 3 [always under water/submerged], 4 [covers and uncovers] or 5 [awash] AND which is not WITHIN a DEPARE and/or UNSARE of type area.
1573	For each DRYDOC object which is not WITHIN a LNDARE object of type area.
1580	For each GATCON which is not WITHIN a DEPARE, DRGARE, UNSARE or LNDARE of type area.
1599a	For each RAPIDS or WATFAL object which is not WITHIN or COINCIDENT with a RIVERS object.
1599b	For each RAPIDS or WATFAL object which is not WITHIN a LNDARE or UNSARE object.
1607a	For each COALNE object where CATCOA is not (7) [mangrove] AND is COINCIDENT with a VEGATN object where CATVEG = (7) [mangroves].
1067b	For each VEGATN object where CATVEG = (7) [mangroves] AND the QUAPOS of the spatial object is not (4) [approximate].
1617	For each DAMCON object of type area which is not WITHIN a LNDARE object of type area.
1619	For each DYKCON object of type area which is not WITHIN a LNDARE object of type area.
1648	For each DRGARE object where QUASOU is not Null AND its value is NOT (10) [maintained depth] or (11) [not regularly maintained].
1649	For each DRGARE where SOUACC is not Null AND the M_QUAL object it lies WITHIN has an equivalent or lesser value of SOUACC.
1651	For each SWPARE object which is not WITHIN DEPARE and/or DRGARE objects of type area.
1652	For each SWPARE object which EQUALS an M_QUAL object AND the DRVAL1 values of the two objects are not equal.
1662	For each WRECKS object OR OBSTRN object of type area which is not WITHIN a DEPARE, LNDARE or UNSARE object of type area.
1670	For each WRECKS or OBSTRN object of type area which CONTAINS objects of type WRECKS or OBSTRN of type point AND the values of EXPSOU, QUASOU, SOUACC, VALSOU and WATLEV of the area object are not equal to the values of the shallowest point object.
1671	For each object of type line which is COINCIDENT with an area object of the same object type and attribute values except attributes SORIND, SORDAT and SCAMIN.

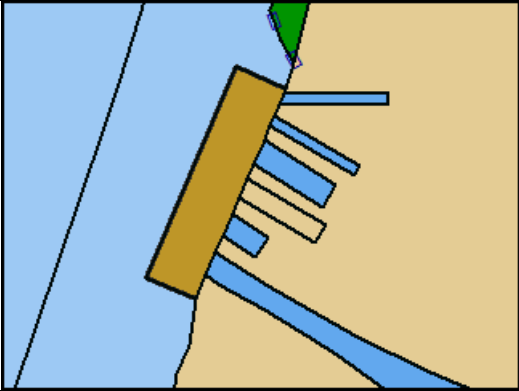
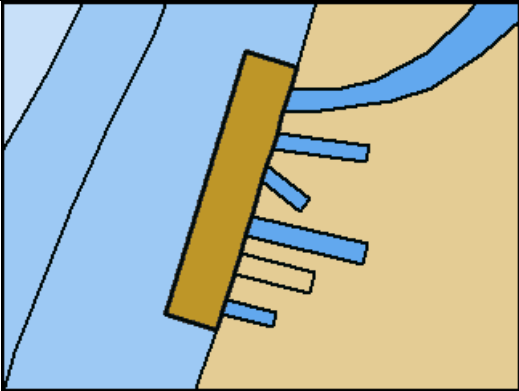
Dataset Name	AA500003	S-58 test No.	T1566	Type	E
S-58 Description	For each edge of a COALNE object OR SLCONS object of type line which is COINCIDENT with a RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN object AND is not COINCIDENT with a DEPARE, DRGARE, UNSARE, PONTON, FLODOC or HULKES object.				
Message	COALNE or SLCONS used as the boundary of objects on LAND.				
Solution	Not required therefore remove COALNE or SLCONS object.	Conformity		4.5, 4.6.6.1, 4.6.6.3	
Test Case No. 1	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE\SLCONS (L) on LNDARE (A).				
Location	32°22'26.45"S 60°47'57.90"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) COALNE (L)		
Screen Capture					
Expected Test Results	T1566: 12 errors “COALNE or SLCONS used as the boundary of objects on LAND” must be triggered.				
Secondary Errors	T0057: 6 additional errors “COALNE object not touching LNDARE or SLCONS or not WITHIN or touching LNDARE objects” must be triggered.				
Test Case No. 2	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by DEPARE (A).				
Location	32°22'29.91"S 60°47'55.85"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) DEPARE (A)		

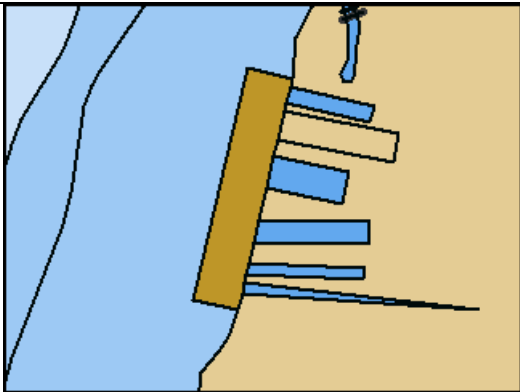
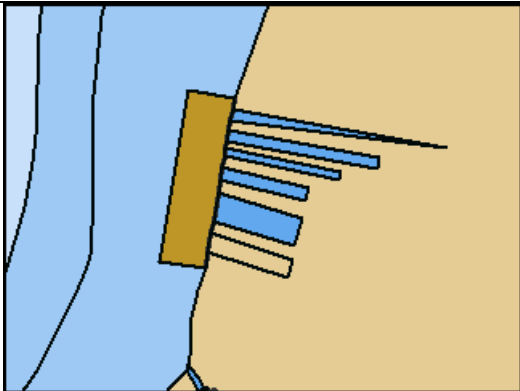
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 3	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by DEPARE.			
Location	32°22'30.78"S 60°47'55.49"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) DEPARE (A)	
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 4	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by DRGARE (A).			
Location	32°22'31.18"S 60°47'55.30"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) DRGARE (A)	

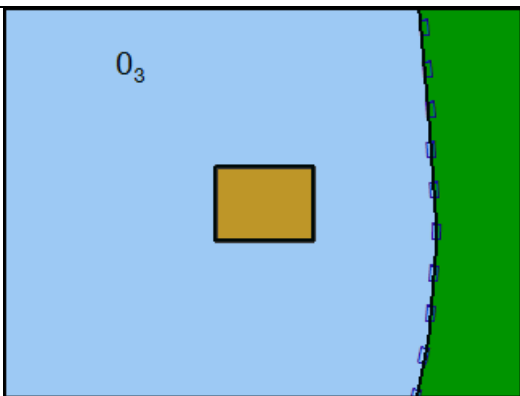
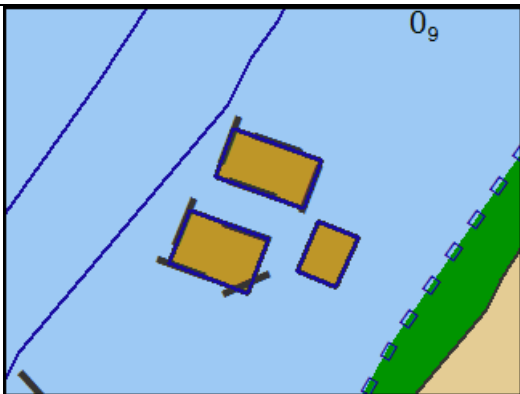
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 5	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by DRGARE (A).			
Location	32°22'31.87"S 60°47'54.86"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) DRGARE (A)	
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 6	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by UNSARE.			
Location	32°22'32.45"S 60°47'54.66"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) UNSARE (A)	

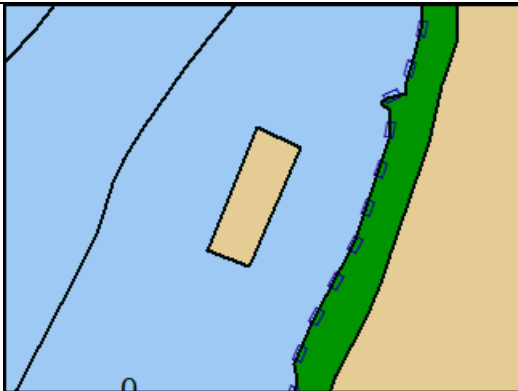
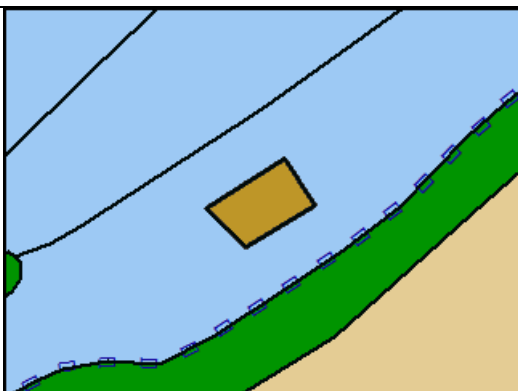
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 7	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by UNSARE.			
Location	32°22'33.05"S 60°47'54.50"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) UNSARE (A)	
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 8	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by PONTON.			
Location	32°22'33.80"S 60°47'54.20"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) PONTON (A)	

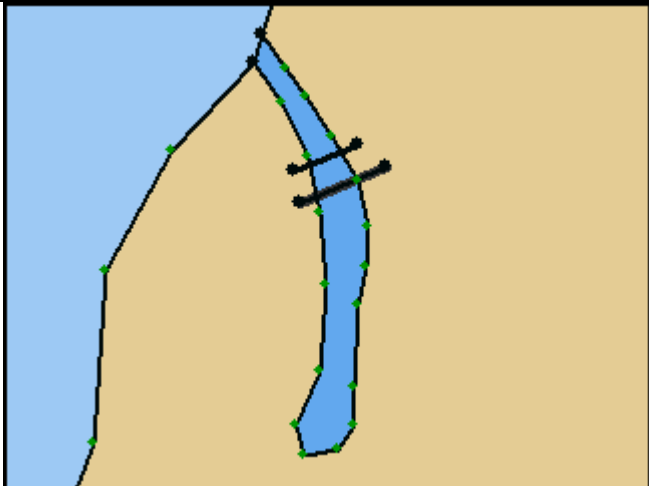
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 9	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by PONTON.			
Location	32°22'41.38"S 60°47'53.82"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) PONTON (A)	
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 10	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by FLODOC.			
Location	32°22'46.70"S 60°47'51.54"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) FLODOC (A)	

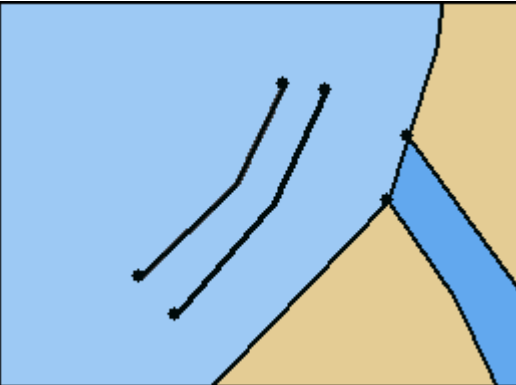
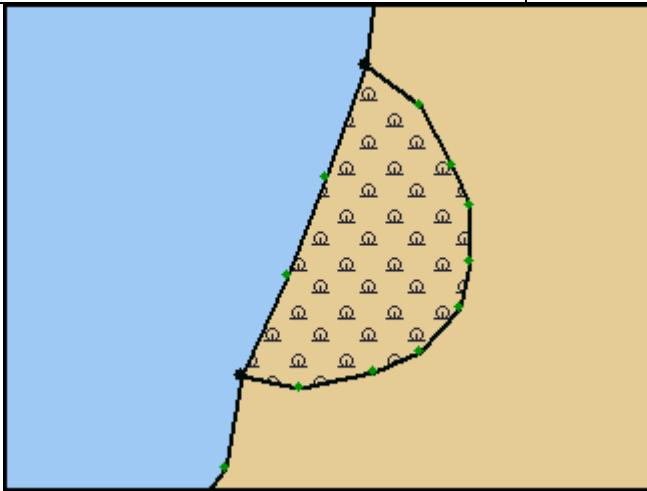
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 11	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by FLODOC.			
Location	32°22'51.44"S 60°47'49.71"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) FLODOC (A)	
Screen Capture				
Expected Test Results	T1566: 6 errors "COALNE or SLCONS used as the boundary of objects on LAND" must not be triggered.			
Secondary Errors	None			
Test Case No. 12	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by COALNE with edges shared by HULKES.			
Location	32°22'59.12"S 60°47'47.21"E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) COALNE (L) HULKES (A)	

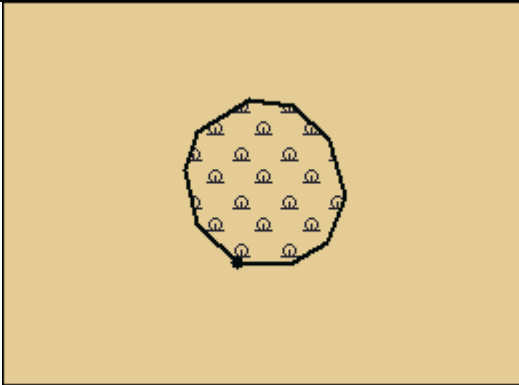
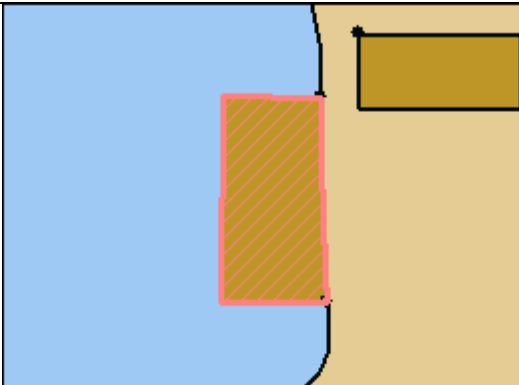
Screen Capture					
Expected Test Results	T1566: 6 errors “COALNE or SLCONS used as the boundary of objects on LAND” must not be triggered.				
Secondary Errors	None				
Test Case No. 13	RIVERS, CANALS, LAKARE, DOCARE, DRYDOC or LOKBSN areas bounded by SLCONS (L) with edges shared by HULKES.				
Location	32°22'55.15”S 60°47'48.36”E	S57 Encoding	RIVERS (A) LAKARE (A) CANALS (A) DOCARE (A) DRYDOC (A) LOKBSN (A) SLCONS (L) HULKES (A)		
Screen Capture					
Expected Test Results	T1566: 6 errors “COALNE or SLCONS used as the boundary of objects on LAND” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1568	Type	E
S-58 Description	For each SLCONS object of type area which is not WITHIN a LNDARE, DEPAARE or UNSARE of type area.				
Message	Area SLCONS not covered by an appropriate TG1 object.				
Solution	Amend appropriate TG1 object to cover SLCONS object.		Conformity	4.5.2	
Test Case No. 1	SLCONS (A) overlapping PONTON.				
Location	32°22'27.65”S 60°47'56.43”E	S57 Encoding	SLCONS (A)	WATLEV=2	

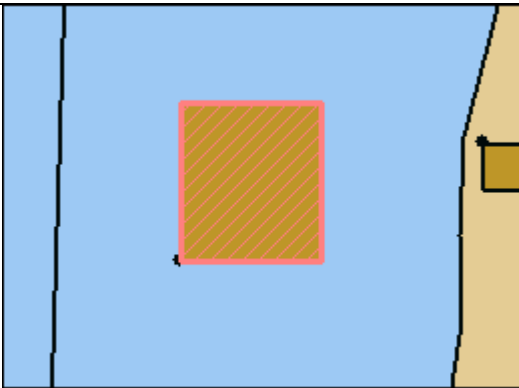
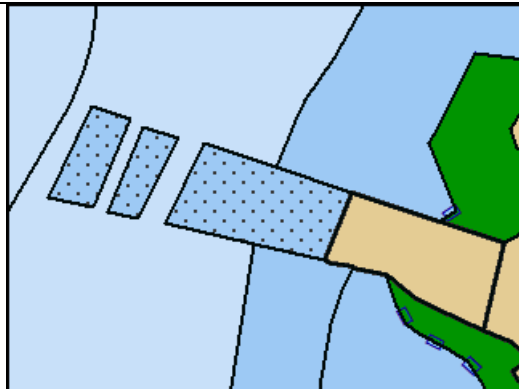
			PONTON (A)		
Screen Capture					
Expected Test Results	T1568: An error “Area SLCONS not covered by an appropriate TG1 object” must be triggered.				
Secondary Errors	T1786: An additional error “Area object with WATLEV = (2) but not on an area LNDARE object” must be triggered.				
Dataset Name	AA500003	S-58 test No.	T1569	Type	E
S-58 Description	For each SLCONS object of type area where WATLEV = 3 [always under water/submerged], 4 [covers and uncovers] or 5 [awash] AND which is not WITHIN a DEPAIRE and/or UNSARE of type area.				
Message	Area SLCONS not covered by an appropriate TG1 object.				
Solution	Amend appropriate TG1 object to cover SLCONS object.		Conformity	4.5.2	
Test Case No. 1	SLCONS (A) overlapping PONTON.				
Location	32°22'16.70"S 60°48'07.72"E	S57 Encoding	PONTON (A) SLCONS (A) SLCONS (A) SLCONS (A)	WATLEV=3 WATLEV=4 WATLEV=5	
Screen Capture					
Expected Test Results	T1569: 3 errors “Area SLCONS not covered by an appropriate TG1 object” must be triggered.				
Secondary Errors	T1568: 3 additional errors “Area SLCONS not covered by an appropriate TG1 object” must be triggered.				
Dataset Name	AA500003	S-58 test No.	T1573	Type	E
S-58 Description	For each DRYDOC object which is not WITHIN a LNDARE object of type area.				

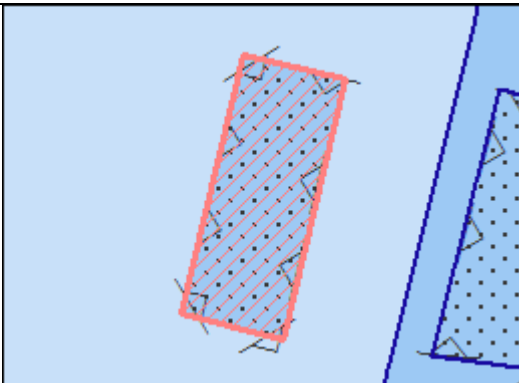
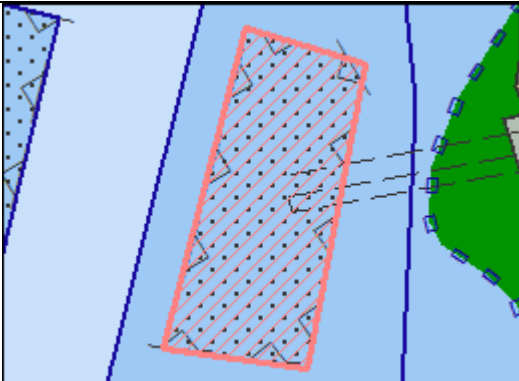
Message	DRYDOC not covered by LNDARE.					
Solution	Amend LNDARE or DRYDOC as required.				Conformity	4.6.6.1
Test Case No. 1	DRYDOC inside DEPART (A).					
Location	32°22'12.96"S 60°48'09.90"E		S57 Encoding	DRYDOC (A)		
Screen Capture						
Expected Test Results	T1573: An error "DRYDOC not covered by LNDARE" must be triggered.					
Secondary Errors	None					
Dataset Name	AA500003		S-58 test No.	T1580	Type	E
S-58 Description	For each GATCON which is not WITHIN a DEPART, DRGARE, UNSARE or LNDARE of type area.					
Message	GATCON not covered by DEPART, DRGARE, UNSARE or LNDARE.					
Solution	Amend objects to ensure GATCON is covered by DEPART, DRGARE, UNSARE or LNDARE.				Conformity	4.6.6.4
Test Case No. 1	GATCON in DEPART (A) overlapping PONTON.					
Location	32°22'22.73"S 60°48'00.27"E		S57 Encoding	GATCON (A) PONTON (A)		
Screen Capture						
Expected Test Results	T1580: An error "GATCON not covered by DEPART, DRGARE, UNSARE or LNDARE" must be triggered.					
Secondary Errors	None					
Dataset Name	AA500003		S-58 test No.	T1599a	Type	W

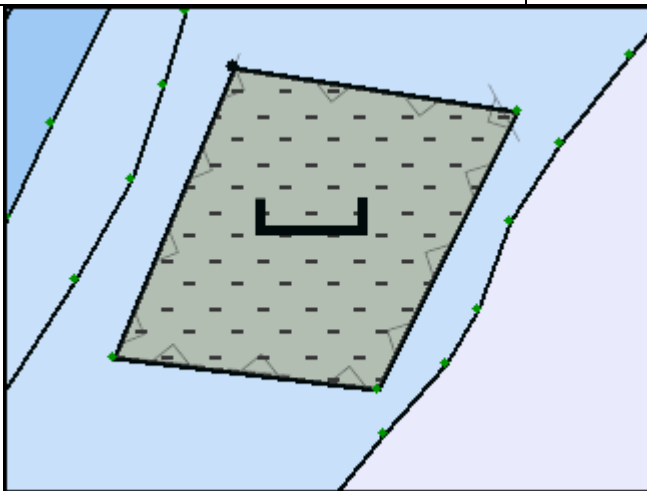
S-58 Description	For each RAPIDS or WATFAL object which is not WITHIN or COINICIDENT with a RIVERS object.				
Message	RAPIDS or WATFAL not WITHIN or touching a RIVERS object.				
Solution	Ensure that each RAPIDS or WATFAL object falls WITHIN or is touching a RIVERS object.	Conformity	4.7.7.1 and 4.7.7.2		
Test Case No. 1	RAPIDS and WATFAL features not surrounded by RIVERS.				
Location	32°22'57.60"S 60°47'48.15"E	S57 Encoding	RAPIDS (L) WATFAL (L) RIVERS (A)		
Screen Capture					
Expected Test Results	T1599a: 2 warnings“RAPIDS or WATFAL not WITHIN or touching a RIVERS object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1599b	Type	W
S-58 Description	For each RAPIDS or WATFAL object which is not WITHIN a LNDARE or UNSARE object.				
Message	RAPIDS or WATFAL not WITHIN LNDARE or UNSARE.				
Solution	Ensure covered by LNDARE or UNSARE.	Conformity	4.7.7.1 and 4.7.7.2		
Test Case No. 1	RAPIDS and WATFAL features overlapping DEPARE (A).				
Location	32°22'57.34"S 60°47'47.77"E	S57 Encoding	RAPIDS (L) WATFAL (L)		

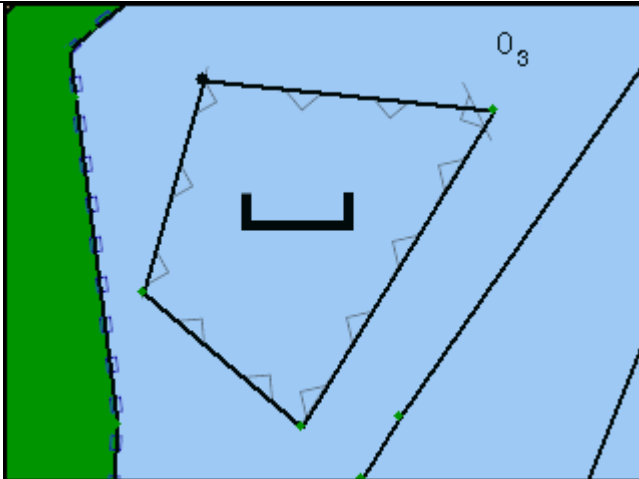
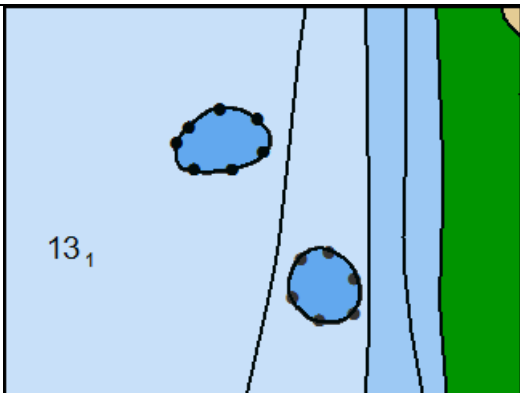
Screen Capture						
Expected Test Results	T1599b: 2 warnings “RAPIDS or WATFAL not WITHIN LNDARE or UNSARE” must be triggered.					
Secondary Errors	T1599a: 2 additional warnings “RAPIDS or WATFAL not WITHIN or touching a RIVERS object” must be triggered.					
Dataset Name	AA500003	S-58 test No.	T1607a	Type	W	
S-58 Description	For each COALNE object where CATCOA is not (7) [mangrove] AND is COINCIDENT with a VEGATN object where CATVEG = (7) [mangroves].					
Message	Value of CATCOA is not (7) [mangrove] where a VEGATN object with CATVEG = (7) [mangroves] is coincident.					
Solution	Populate CATCOA (7) [mangrove] on the COALNE object.			Conformity	4.7.11	
Test Case No. 1	VEGATN (A) adjacent to COALNE without CATCOA=7.					
Location	32°23'02.21”S 60°47'46.23”E	S57 Encoding	VEGATN (A) COALNE (L)	CATVEG=7		
Screen Capture						
Expected Test Results	T1607a: A warning “Value of CATCOA is not (7) [mangrove] where a VEGATN object with CATVEG = (7) [mangroves] is coincident” must be triggered.					
Secondary Errors	None					
Dataset Name	AA500003	S-58 test No.	T1607b	Type	W	
S-58 Description	For each VEGATN object where CATVEG = (7) [mangroves] AND the QUAPOS of the spatial object is not (4) [approximate].					

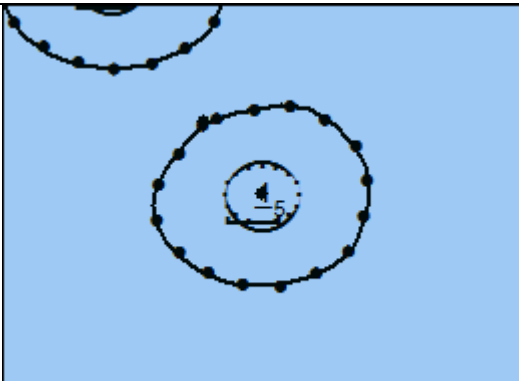
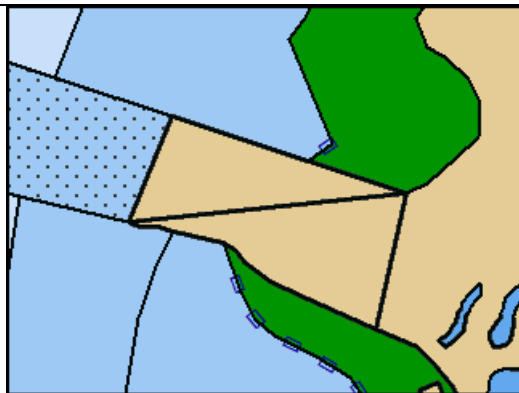
Message	VEGATN object where CATVEG = (7) [mangroves] without QUAPOS = (4) [approximate].				
Solution	Populate QUAPOS = (4) [approximate].		Conformity	4.7.11	
Test Case No. 1	VEGATN (A) overlapping LNDARE (A) without QUAPOS=4.				
Location	32°23'02.47"S 60°47'48.11"E	S57 Encoding	VEGATN (A)	CATVEG=7	
Screen Capture					
Expected Test Results	T1607b: A warning "VEGATN object where CATVEG = (7) [mangroves] without QUAPOS = (4) [approximate]" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1617	Type	C
S-58 Description	For each DAMCON object of type area which is not WITHIN a LNDARE object of type area.				
Message	DAMCON not covered by LNDARE.				
Solution	Ensure DAMCON is covered by LNDARE.		Conformity	4.8.5	
Test Case No. 1	DAMCON (A) overlapping DEPAE (A).				
Location	32°23'07.25"S 60°47'45.03"E	S57 Encoding	DAMCON (A) DEPAE (A)		
Screen Capture					
Expected Test Results	T1617: An error "DAMCON not covered by LNDARE" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1619	Type	E

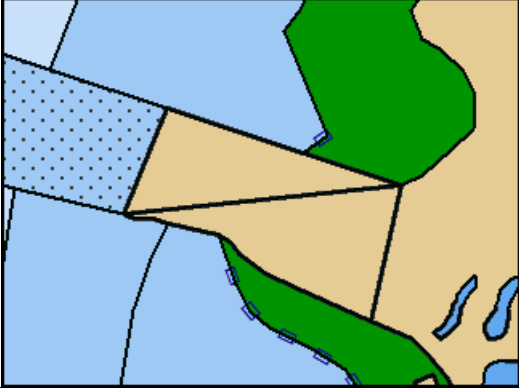
S-58 Description	For each DYKCON object of type area which is not WITHIN a LNDARE object of type area.				
Message	DYKCON not covered by LNDARE.				
Solution	Ensure DYKCON is covered by LNDARE.	Conformity	4.8.7		
Test Case No. 1	DYKCON (A) overlapping DEPAE (A).				
Location	32°23'05.30"S 60°47'44.20"E	S57 Encoding	DYKCON (A) DEPAE (A)		
Screen Capture					
Expected Test Results	T1619: An error “DYKCON not covered by LNDARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1648	Type	E
S-58 Description	For each DRGARE object where QUASOU is not Null AND its value is NOT (10) [maintained depth] or (11) [not regularly maintained].				
Message	Invalid value of QUASOU on DRGARE.				
Solution	Remove invalid value of QUASOU.	Conformity	5.5		
Test Case No. 1	DRGARE with QUASOU attributed.				
Location	32°22'25.17"S 60°47'54.40"E	S57 Encoding	DRGARE (A)	QUASOU=6	
Screen Capture					
Expected Test Results	T1648: An error “Invalid value of QUASOU on DRGARE” must be triggered.				
Secondary Errors	T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				

Dataset Name	AA500003	S-58 test No.	T1649	Type	E
S-58 Description	For each DRGARE where SOUACC is not Null AND the M_QUAL object it lies WITHIN has an equivalent or lesser value of SOUACC.				
Message	Value of SOUACC on DRGARE is equivalent to or degrades the value on the underlying M_QUAL.				
Solution	Amend or remove value of SOUACC as appropriate.	Conformity		5.5 and 2.2.3.1	
Test Case No. 1	A DRGARE and M_QUAL with different SOUACC.				
Location	32°22'35.28"S 60°47'51.00"E	S57 Encoding	DRGARE (A) M_QUAL (A)	SOUACC=2 SOUACC=1	
Screen Capture					
Expected Test Results	T1649: An error "Value of SOUACC on DRGARE is equivalent to or degrades the value on the underlying M_QUAL" must be triggered.				
Secondary Errors	T1530: An additional error "SOUACC value on object is equivalent to value used on the M_QUAL it lies WITHIN" must be triggered.				
Test Case No. 2	DRGARE and M_QUAL with the same SOUACC.				
Location	32°22'35.47"S 60°47'52.53"E	S57 Encoding	DRGARE (A) M_QUAL (A)	SOUACC=2 SOUACC=2	
Screen Capture					
Expected Test Results	T1649: An error "Value of SOUACC on DRGARE is equivalent to or degrades the value on the underlying M_QUAL" must be triggered.				
Secondary Errors	T1530: An additional error "SOUACC value on object is equivalent to value used on the M_QUAL it lies WITHIN" must be triggered.				
Dataset Name	AA500003	S-58 test No.	T1651	Type	C

S-58 Description	For each SWPARE object which is not WITHIN DEPARE and/or DRGARE objects of type area.				
Message	SWPARE not covered by DRGARE or DEPARE objects.				
Solution	Amend limits of SWPARE or edit DEPARE and/or DRGARE objects.	Conformity	5.6		
Test Case No. 1	SWPARE overlapping UNSARE.				
Location	32°23'24.99"S 60°49'16.81"E	S57 Encoding	SWPARE (A) UNSARE (A)	DRVAL1=1	
Screen Capture					
Expected Test Results	T1651: An error “SWPARE not covered by DRGARE or DEPARE objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1652	Type	E
S-58 Description	For each SWPARE object which EQUALS an M_QUAL object AND the DRVAL1 values of the two objects are not equal.				
Message	SWPARE object sharing the position and geometry of M_QUAL object but DRVAL1 Values are not equal.				
Solution	Amend values of DRVAL1.	Conformity	5.6		
Test Case No. 1	SWPARE and M_QUAL objects with the same geometry.				
Location	32°23'31.64"S 60°49'07.44"E	S57 Encoding	SWPARE (A) M_QUAL (A)	DRVAL1=2 DRVAL1=1	

Screen Capture						
Expected Test Results	T1652: An error “SWPARE object sharing the position and geometry of M_QUAL object but DRVAL1 Values are not equal” must be triggered.					
Secondary Errors	None					
Dataset Name	AA500003	S-58 test No.	T1662	Type	E	
S-58 Description	For each WRECKS object OR OBSTRN object of type area which is not WITHIN a DEPART, LNDARE or UNSARE object of type area.					
Message	Area WRECKS or OBSTRN object not within a DEPART, LNDARE or UNSARE type object.					
Solution	Amend to ensure appropriate group 1 object is the underlying object.		Conformity	6.2.1 and 6.2.2		
Test Case No. 1	WRECKS (A) and OBSTRN (A) overlapping PONTON (A).					
Location	32°23'15.60"S 60°47'39.19"E	S57 Encoding	OBSTRN (A) WRECKS (A) PONTON (A)			
Screen Capture						
Expected Test Results	T1662: 2 errors “Area WRECKS or OBSTRN object not within a DEPART, LNDARE or UNSARE type object” must be triggered.					
Secondary Errors	None					
Dataset Name	AA500003	S-58 test No.	T1670	Type	W	

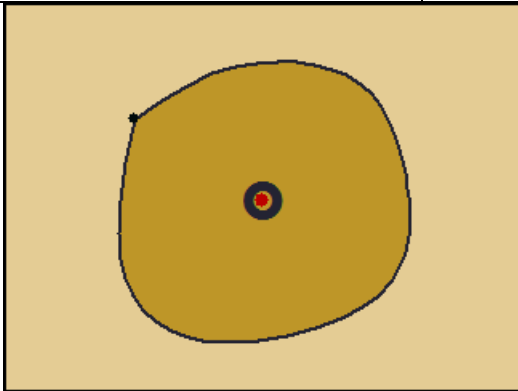
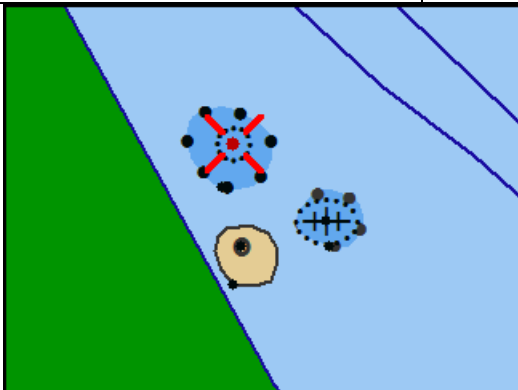
				SOUACC=1 TECSOU=6 VALSOU=-1.5	
Screen Capture					
Expected Test Results	T1670: 6 warnings “Point WRECKS or OBSTRN within area WRECKS or OBSTRN have attribute values not reflected on the area object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500003	S-58 test No.	T1671	Type	W
S-58 Description	For each object of type line which is COINCIDENT with an area object of the same object type and attribute values except attributes SORIND, SORDAT and SCAMIN.				
Message	Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN.				
Solution	Delete unnecessary object.		Conformity	Logical consistency	
Test Case No. 1	Coincident SLCONS (A, L) objects with the same attribute values.				
Location	32°22'25.20"S 60°47'55.86"E	S57 Encoding	SLCONS (A) SLCONS (L)	CATSLC=10 WATLEV=2	
Screen Capture					
Expected Test Results	T1671: A warning “Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN” must be triggered.				
Secondary Errors	None				
Test Case No. 2	Coincident SLCONS (A, L) objects where one of the SLCONS objects has attributes SORIND, SORDAT and SCAMIN assigned.				

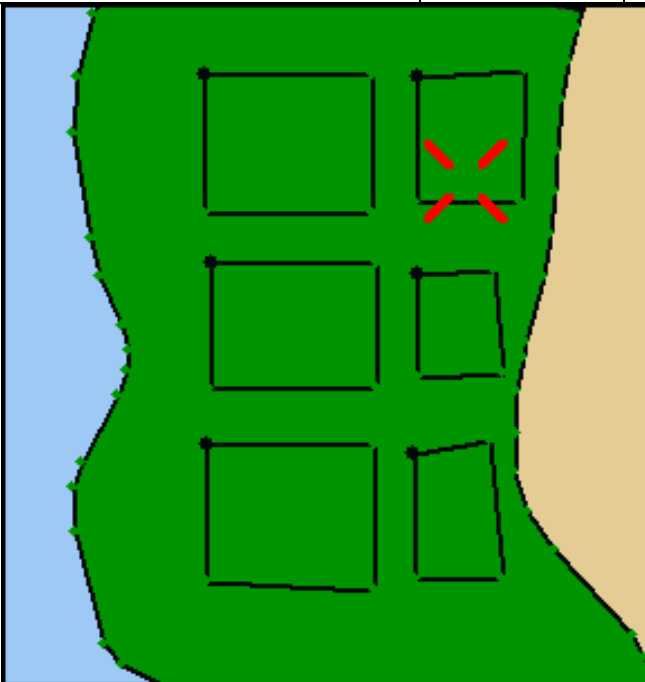
Location	32°22'26.10"S 60°47'56.28"E	S57 Encoding	SLCONS (L) SLCONS (A)	CATSLC=10 WATLEV=2 CATSLC=10 WATLEV=2 SCAMIN=4999 99 SORDAT=2012 0628 SORIND=US,U S,reprt,S-58
Screen Capture				
Expected Test Results	T1671: A warning "Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN" must not be triggered.			
Secondary Errors	None			

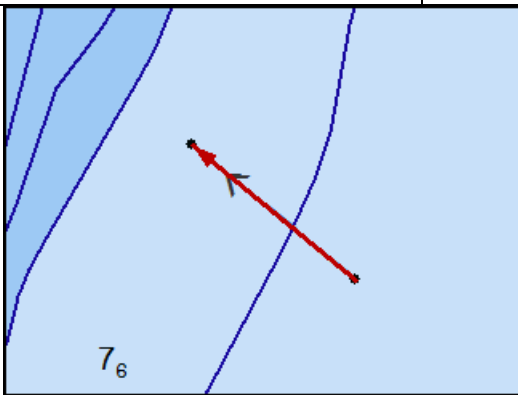
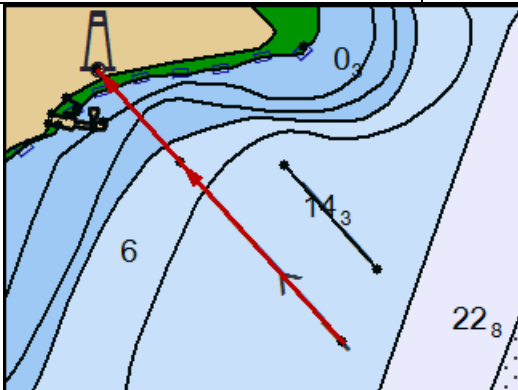
2.4. Test Dataset: AA500004

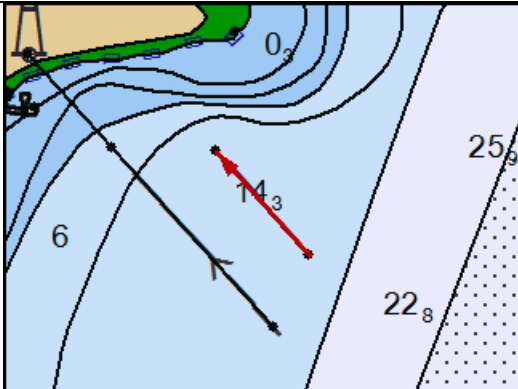
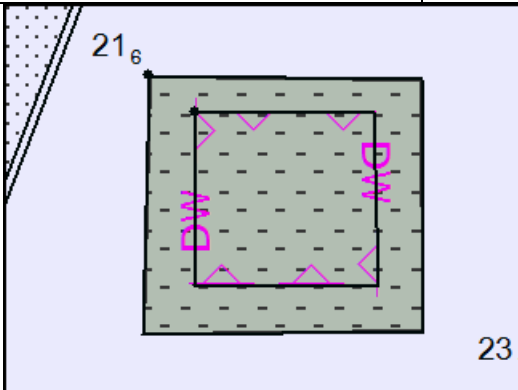
List of S-58 Recommended ENC Validation Checks covered in this section:

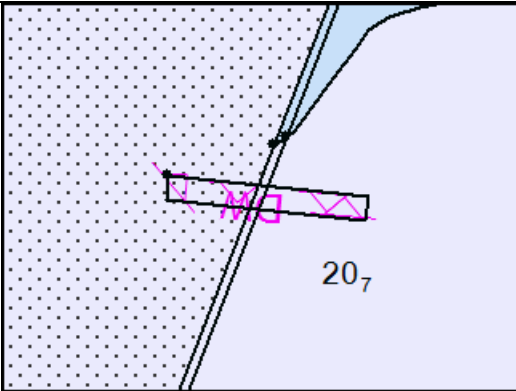
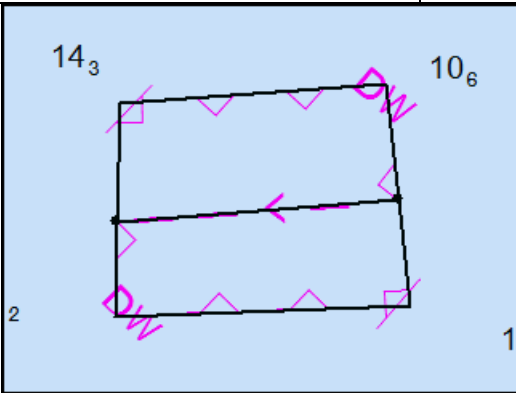
S-58 Test	Description		
1672	For each object of type point which is WITHIN an object of the same class AND which had the same attribute values AND is not of type LNDARE, WRECKS, or OBSTRN.		
1674	For each SBDARE or type Area WITHIN a DEPARE where DRVAL1 is less than 0 AND WATLEV is not equal to (4) [covers and uncovers].		
1681	For each RECTRC object of type line where ORIENT is not Null AND the direction of digitising is not greater than 5 degrees greater than or less than the value of ORIENT.		
1682	For each RECTRC or NAVLNE object which is not part of a C_AGGR collection object AND is not a RECTRC object with CATTRK equal to (2) [not based on a system of fixed marks].		
1692	For each DWRTPT object which is NOT WITHIN the combined coverage of objects of type DEPARE or DRGARE.		
1693	For each object of type DWRTPT and DWRTCL where OBJNAM is not Null AND the object is aggregated in a collection object.		
1694	For each DWRTCL object where ORIENT is not Null AND TRAFIC equals (1),(2) or (3) AND the direction of digitising is not greater than 5 degrees greater than or less than the value of ORIENT.		
1696	For each RCRTCL where TRAFIC equals (1), (2) or (3) AND the direction of digitizing is not 5 degrees greater than or less than the value of ORIENT.		
1698	For each TWRTPT object where VERDAT or DRVAL2 are present.		
1719	For each MARCUL object where the attribute values do not correspond to the table below; For each specific case, when QUASOU (attribute of type List) is encoded, it should contain one or more values selected from the list of allowed values given in the table. In addition, other attributes which do not appear in the table may be encoded.		
	WATLEV	VALSOU	QUASOU
	1, 2, 5 or 7	Undefined	Undefined
	4	< 0	1, 3, 4, 6, 7, 8, 9 or undefined
		Undefined or unknown	2 or undefined
	5	0	1, 3, 4, 6, 8, 9 or undefined
		Undefined or unknown	2 or undefined
	3	> 0	1, 3, 4, 6, 7, 8, 9 or undefined
Unknown		2 or undefined	
Unknown	Unknown	2 or undefined	
1722a	For each navigational aid equipment object which is not a slave to a navigational aid structure object OR another navigational aid equipment object. NOTE: CRANES, FLODOC, FORSTC, FSHFAC, HULKES, PONTON, OBSTRN, PYLONS, SILTNK and WRECKS objects must be considered as possible structure objects, in addition to the list given in Annex A (12.1.1).		
1722b	For each DAYMAR object EQUALS another structure object and is not marked as an equipment object NOTE: CRANES, FLODOC, FORSTC, FSHFAC, HULKES, PONTON, OBSTRN, PYLONS, SILTNK and WRECKS objects must be considered as possible structure objects, in addition to the list given in Annex A (12.1.1).		
1724	For each navigational aid equipment object where OBJNAM equals the OBJNAM of the master object.		
1725	For each master/slave relationship where all component objects (master and slaves) are of the classes DAYMAR, FOGSIG, LIGHTS, RADSTA, RDOSTA, RETRFL, RTPBCN, SISTAT, SISTAW and/or TOPMAR AND where at least one object DAYMAR or LIGHTS is in the list AND where a DAYMAR or a LIGHTS is not the master object.		
1726	If the M_COVR object where CATCOV=1 does not EQUAL the combined coverage of M_NSYS objects where MARSYS is not Null.		
1732	For each BCNLAT object where VERDAT OR VERACC are present.		
1765a	If the cell contains both M_QUAL and M_ACCY objects and their combined coverage does not EQUAL the M_COVR objects where CATCOV equals (1) [coverage available].		
1765b	If objects of type M_QUAL and M_ACCY OVERLAP.		
1766	For each attribute of type PICREP, TXTDSC and NTXTDS where the attribute value contains more than one file name.		
1767	For each edge which is COINCIDENT with a SBDARE object of type area where WATLEV = 4 [covers and uncovers] AND is COINCIDENT with an area DEPARE or DRGARE object where DRVAL2<= 0 AND is COINCIDENT with an area DEPARE or DRGARE object where DRVAL1 >=0 OR an UNSARE object AND is not COINCIDENT with a DAMCON, GATCON, SLCONS or LNDARE object AND is not COINCIDENT with a DEPCNT object where VALDCO = 0.		

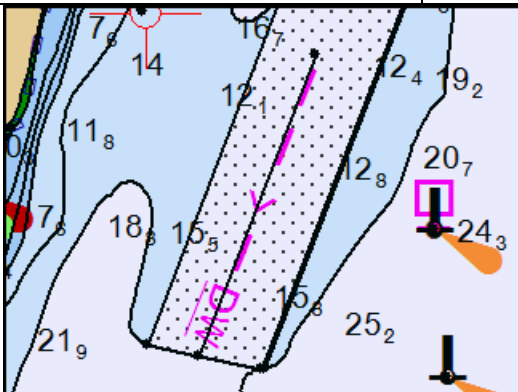
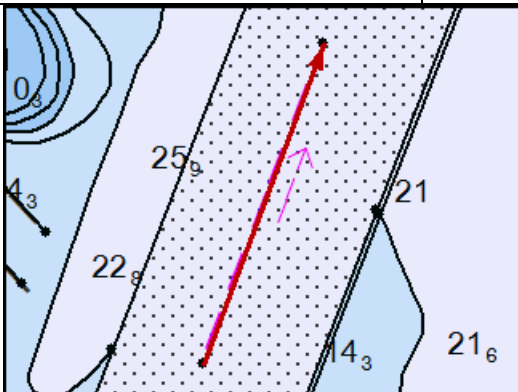
Dataset Name	AA500004	S-58 test No.	T1672	Type	E
S-58 Description	For each object of type point which is WITHIN an object of the same class AND which had the same attribute values AND is not of type LNDARE, WRECKS, or OBSTRN.				
Message	Object with the same attributes within an identical object.				
Solution	Delete repeated object or amend attributes accordingly.	Conformity	Logical consistency		
Test Case No. 1	SILTNK (A) inside SILTNK (P).				
Location	32°22'21.13"S60°49'38.17"E	S57 Encoding	SILTNK (A, P)		
Screen Capture					
Expected Test Results	T1672: An error "Object with the same attributes within an identical object" must be triggered.				
Secondary Errors	None				
Test Case No. 2	LNDARE, WRECKS & OBSTRN (P) objects inside LNDARE, WRECKS & OBSTRN (A) objects.				
Location	32°22'22.00"S60°49'48.22"E	S57 Encoding	LNDARE (A, P) WRECKS (A, P) OBSTRN (A, P)		
Screen Capture					
Expected Test Results	T1672: 3 errors "Object with the same attributes within an identical object" must not be triggered.				
Secondary Errors	T0055: An additional warning "Point LNDARE lies on land" must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1674	Type	W
S-58 Description	For each SBDARE or type Area WITHIN a DEPRE where DRVAL1 is less than 0 AND WATLEV is not equal to (4) [covers and uncovers].				

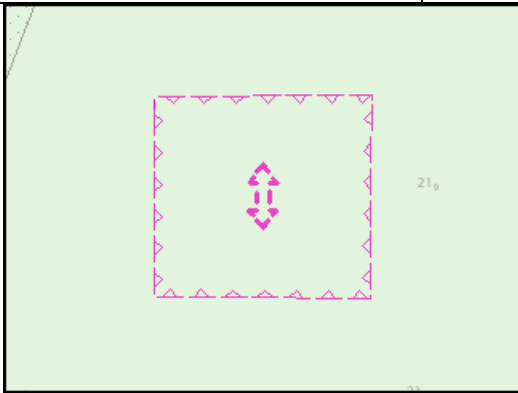
Message	SBDARE object in drying area without WATLEV = (4).				
Solution	Populate WATLEV = (4) [covers and uncovers].		Conformity	7.1(e) and 7.1 (g)	
Test Case No. 1	SBDARE (A) with WATLEV=3 in intertidal area.				
Location	32°22'13.70"S 60°51'34.47"E	S57 Encoding	SBDARE (A) DEPARE (A)	NATSUR=9 WATLEV=1,2,3,5,6,7 DRVAL1=-1 DRVAL2=0	
Screen Capture					
Expected Test Results	T1674: 6 warnings "SBDARE object in drying area without WATLEV = (4)" must be triggered.				
Secondary Errors	T0061a: An additional error "Line or area object which is WATLEV = 3 [always underwater/submerged] lies WITHIN or overlapping an inter-tidal area (DEPARE with DRVAL2 ≤ 0) or land area" must be triggered. T1786: An additional error "Area object with WATLEV = (2) but not on an area LNDARE object" must be triggered. T2000: 4 additional errors "Attribute value which is not allowed use on an object" must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1681	Type	C
S-58 Description	For each RECTRC object of type line where ORIENT is not Null AND the direction of digitising is not greater than 5 degrees greater than or less than the value of ORIENT.				
Message	RECTRC where ORIENT does not correspond to the direction of digitising.				
Solution	Amend value of ORIENT.		Conformity	10.1.1	
Test Case No. 1	RECTRC (L) where direction of digitization is = 130.				

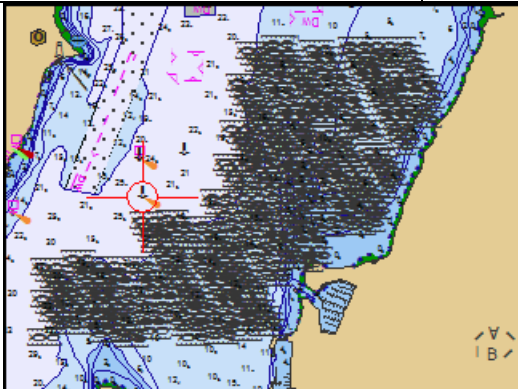
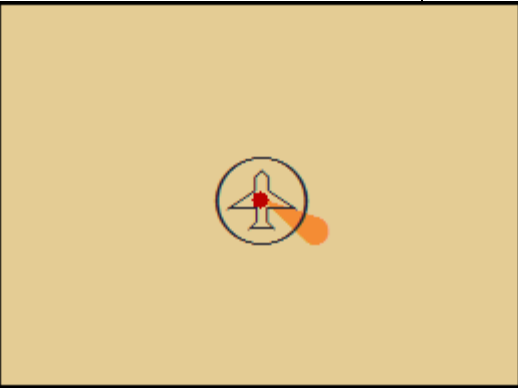
Location	32°22'34.54"S 60°49'43.63"E	S57 Encoding	RECTRC (L)	ORIENT=100	
Screen Capture					
Expected Test Results	T1681: An error “RECTRC where ORIENT does not correspond to the direction of digitising” must be triggered.				
Secondary Errors	T1789: An additional error “DWRTCL, NAVLNE, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1682	Type	W
S-58 Description	For each RECTRC or NAVLNE object which is not part of a C_AGGR collection object AND is not a RECTRC object with CATTRK equal to (2) [not based on a system of fixed marks].				
Message	RECTRC or NAVLNE object not part of C_AGGR collection (except RECTRC where CATTRK=2).				
Solution	Add to C_AGGR collection object.		Conformity	10.1.2	
Test Case No. 1	RECTRC and NAVLNE				
Location	32°22'27.81"S 60°49'46.15"E	S57 Encoding	NAVLNE (L) RECTRC (L)		
Screen Capture					
Expected Test Results	T1682: 2 warnings “RECTRC or NAVLNE object not part of C_AGGR collection (except RECTRC where CATTRK=2)” must be triggered.				
Secondary Errors	T1788: An additional warning “NAVLNE and RECTRC share an edge but are not aggregated using C_AGGR” must be triggered.				
Test Case No. 2	RECTRC				
Location	32°22'29.16"S 60°49'50.21"E	S57 Encoding	RECTRC (L)	CATTRK = 2	

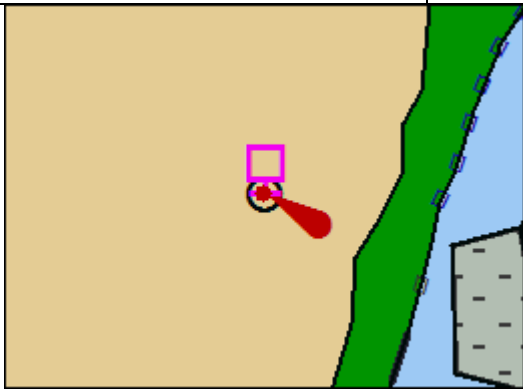
Screen Capture					
Expected Test Results	T1682: A warning “RECTRC or NAVLNE object not part of C_AGGR collection (except RECTRC where CATTRK=2)” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	T1692	Type	E
S-58 Description	For each DWRTPT object which is NOT WITHIN the combined coverage of objects of type DEPART or DRGARE.				
Message	DWRTPT object not covered DEPART or DRGARE objects.				
Solution	Encode appropriate DEPART or DRGARE objects.		Conformity	10.2.2.1	
Test Case No. 1	DWRTPT inside UNSARE.				
Location	32°22'13.41"S60°50'19.66"E	S57 Encoding	UNSARE (A) DWRTPT (A)		
Screen Capture					
Expected Test Results	T1692: An error “DWRTPT object not covered DEPART or DRGARE objects” must be triggered.				
Secondary Errors	None				
Test Case No. 2	DWRTPT inside DRGARE and DEPART.				
Location	32°22'02.75"S 60°50'16.85"E	S57 Encoding	DWRTPT (A)		

Screen Capture					
Expected Test Results	T1692: 2 errors “DWRTPPT object not covered DEPARE or DRGARE objects” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	1693	Type	W
S-58 Description	For each object of type DWRTPPT and DWRTPCL where OBJNAM is not Null AND the object is aggregated in a collection object.				
Message	DWRTPPT or DWRTPCL objects with OBJNAM form part of a collection object.				
Solution	Encode the name using the C_AGGR meta object or create a SEARRE. Remove it from DWRTPPT or/and DWRTPCL.	Conformity	10.2.2.1		
Test Case No. 1	DWRTPPT (A) and DWRTPCL (L) with OBJNAM attributes aggregated in a collection object.				
Location	32°22'15.64"S60°50'47.48"E	S57 Encoding	DWRTPCL (L) DWRTPPT (A)	OBJNAM = Deep Water	
Screen Capture					
Expected Test Results	T1693: 2 warnings “DWRTPPT or DWRTPCL objects with OBJNAM form part of a collection object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	T1694	Type	C
S-58 Description	For each DWRTPCL object where ORIENT is not Null AND TRAFIC equals (1),(2) or (3) AND the direction of digitising is not greater than 5 degrees greater than or less than the value of ORIENT.				
Message	One way DWRTPCL where ORIENT does not correspond to the direction of digitising.				

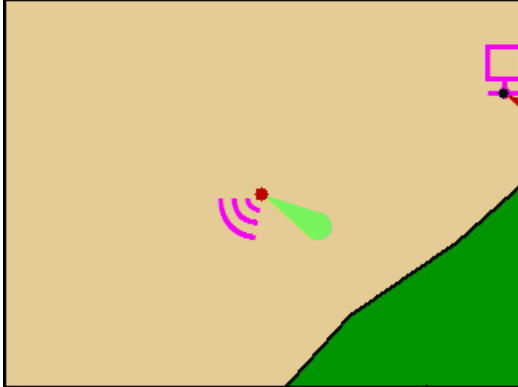
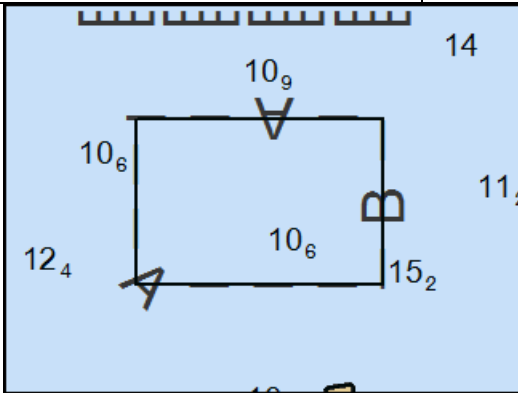
Solution	Amend value of ORIENT.		Conformity	10.2.2.2	
Test Case No. 1	DVRTCL (L).				
Location	32°22'47.20"S60°49'52.09"E	S57 Encoding	DVRTCL (L)	CATTRK=2 ORIENT=320 TRAFIC=3	
Screen Capture					
Expected Test Results	T1694: An error “One way DVRTCL where ORIENT does not correspond to the direction of digitising” must be triggered.				
Secondary Errors	T1789: An additional error “DVRTCL, NAVLNE, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1696	Type	C
S-58 Description	For each RCRTCL where TRAFIC equals (1), (2) or (3) AND the direction of digitizing is not 5 degrees greater than or less than the value of ORIENT.				
Message	One way RCRTCL where ORIENT does not correspond to the direction of digitising.				
Solution	Amend value of ORIENT.		Conformity	10.2.4	
Test Case No. 1	RCRTCL (L).				
Location	32°22'28.79"S60°50'00.33"E	S57 Encoding	RCRTCL (L)	CATTRK=2 ORIENT=5 TRAFIC=3	
Screen Capture					
Expected Test Results	T1696: An error “One way RCRTCL where ORIENT does not correspond to the direction of digitising” must be triggered.				
Secondary Errors	T1789: An additional error “DVRTCL, NAVLNE, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered.				

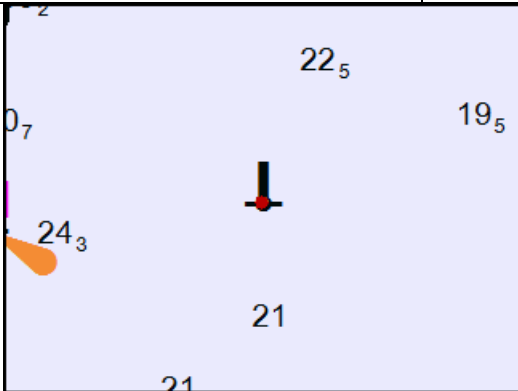
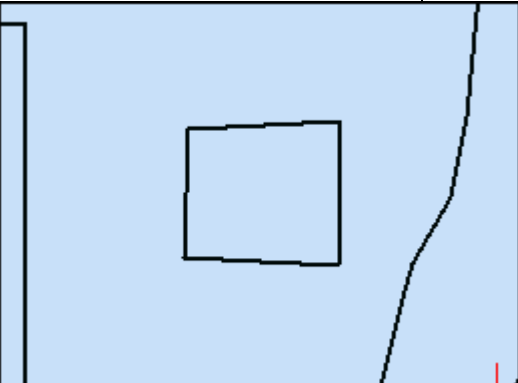
Dataset Name	AA500004	S-58 test No.	T1698	Type	E																								
S-58 Description	For each TWRTPT object where VERDAT or DRVAL2 are present.																												
Message	VERDAT or DRVAL2 are present on TWRTPT object.																												
Solution	Remove VERDAT or DRVAL2.	Conformity	10.2.6																										
Test Case No. 1	TWRTPT with VERDAT and DRVAL2 attribute values encoded.																												
Location	32°22'27.63"S60°50'16.87"E	S57 Encoding	TWRTPT (A)	VERDAT=1 DRVAL2=25																									
Screen Capture																													
Expected Test Results	T1698: 2 errors “VERDAT or DRVAL2 are present on TWRTPT object” must be triggered.																												
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.																												
Dataset Name	AA500004	S-58 test No.	T1719	Type	W																								
S-58 Description	For each MARCUL object where the attribute values do not correspond to the table below; For each specific case, when QUASOU (attribute of type List) is encoded, it should contain one or more values selected from the list of allowed values given in the table. In addition, other attributes which do not appear in the table may be encoded.																												
	<table><tr><td>WATLEV</td><td>VALSOU</td><td>QUASOU</td></tr><tr><td>1, 2, 5 or 7</td><td>Undefined</td><td>Undefined</td></tr><tr><td rowspan="2">4</td><td>VALSOU < 0</td><td>1, 3, 4, 6, 7, 8, 9 or undefined</td></tr><tr><td>Undefined or unknown</td><td>2 or undefined</td></tr><tr><td rowspan="2">5</td><td>VALSOU = 0</td><td>1, 3, 4, 6, 8, 9 or undefined</td></tr><tr><td>Undefined or unknown</td><td>2 or undefined</td></tr><tr><td rowspan="2">3</td><td>VALSOU > 0</td><td>1, 3, 4, 6, 7, 8, 9 or undefined</td></tr><tr><td>Unknown</td><td>2 or undefined</td></tr><tr><td>Unknown</td><td>Unknown</td><td>2 or undefined</td></tr></table>					WATLEV	VALSOU	QUASOU	1, 2, 5 or 7	Undefined	Undefined	4	VALSOU < 0	1, 3, 4, 6, 7, 8, 9 or undefined	Undefined or unknown	2 or undefined	5	VALSOU = 0	1, 3, 4, 6, 8, 9 or undefined	Undefined or unknown	2 or undefined	3	VALSOU > 0	1, 3, 4, 6, 7, 8, 9 or undefined	Unknown	2 or undefined	Unknown	Unknown	2 or undefined
WATLEV	VALSOU	QUASOU																											
1, 2, 5 or 7	Undefined	Undefined																											
4	VALSOU < 0	1, 3, 4, 6, 7, 8, 9 or undefined																											
	Undefined or unknown	2 or undefined																											
5	VALSOU = 0	1, 3, 4, 6, 8, 9 or undefined																											
	Undefined or unknown	2 or undefined																											
3	VALSOU > 0	1, 3, 4, 6, 7, 8, 9 or undefined																											
	Unknown	2 or undefined																											
Unknown	Unknown	2 or undefined																											
Message	Illogical attribute combination for MARCUL.																												
Solution	Amend attribute values to reflect a logical scenario.	Conformity	11.9.2																										
Test Case No. 1	MARCUL (P) with attribute values encoded.																												

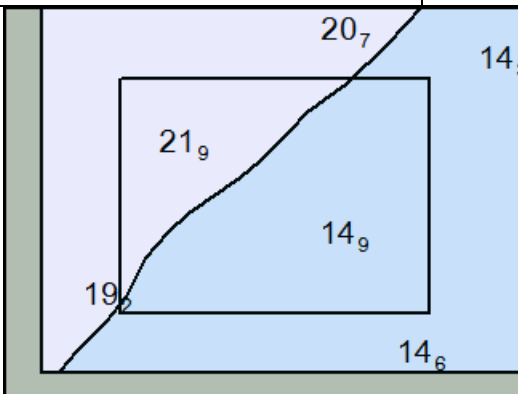
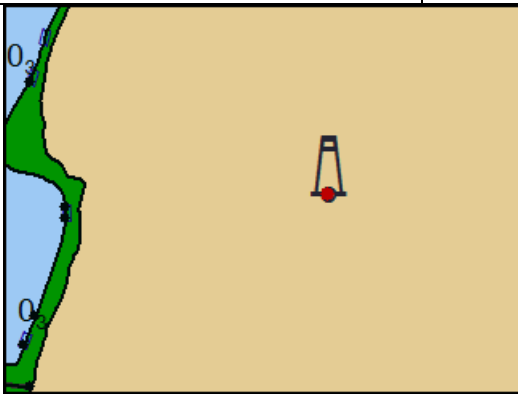
Location	32°23'00.20"S 60°50'41.15"E	S57 Encoding	MARCUL (P)	VALSOU=- 1/1/2/3/4/6 QUASOU=UNKNOWN, 1,2,3,4,5,6,7,8,9,10,1 1 WATLEV=1,2,3,4,5,6,7	
Screen Capture					
Expected Test Results	T1719: 546 warnings “Illogical attribute combination for MARCUL” must be triggered.				
Secondary Errors	T2000: 245 additional errors “Attribute value which is not allowed use on an object” must be triggered. T0507: 26 additional errors “Mandatory attributes are not populated” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1722a	Type	W
S-58 Description	For each navigational aid equipment object which is not a slave to a navigational aid structure object OR another navigational aid equipment object. NOTE: CRANES, FLODOC, FORSTC, FSHFAC, HULKES, PONTON, OBSTRN, PYLONS, SILTNK and WRECKS objects must be considered as possible structure objects, in addition to the list given in Annex A (12.1.1).				
Message	Equipment object which is not a slave of a structure or another equipment object.				
Solution	Amend equipment object to slave.		Conformity	12.1.2 and 12.1.1	
Test Case No. 1	AIRARE (master) and LIGHTS (slave).				
Location	32°22'35.56"S 60°49'35.17"E	S57 Encoding	AIRARE (P) LIGHTS (P)		
Screen Capture					
Expected Test Results	T1722a: A warning “Equipment object which is not a slave of a structure or another equipment object” must be triggered.				
Secondary Errors	None				


Dataset Name	AA500004	S-58 test No.	T1722b	Type	W
S-58 Description	For each DAYMAR object EQUALS another structure object and is not marked as an equipment object. NOTE: CRANES, FLODOC, FORSTC, FSHFAC, HULKES, PONTON, OBSTRN, PYLONS, SILTNK and WRECKS objects must be considered as possible structure objects, in addition to the list given in Annex A (12.1.1).				
Message	DAYMAR marked as structure object where another exists.				
Solution	Amend DAYMAR to slave.		Conformity	12.1.2 and 12.1.1	
Test Case No. 1	BUISGL (master), LIGHTS (slave) and DAYMAR.				
Location	32°22'29.92"S 60°49'38.61"E	S57 Encoding	BUISGL (P) LIGHTS (P) DAYMAR (P)		
Screen Capture					
Expected Test Results	T1722b: A warning “DAYMAR marked as structure object where another exists” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	T1724	Type	W
S-58 Description	For each navigational aid equipment object where OBJNAM equals the OBJNAM of the master object.				
Message	OBJNAM on navigational aid equipment object repeats that of the master object.				
Solution	Remove repeated OBJNAM value.		Conformity	12.1.2	
Test Case No. 1	The same OBJNAM has been encoded for both master and slave objects.				
Location	32°22'56.03"S 60°50'05.27"E	S57 Encoding	BCNSPP LIGHTS	OBJNAM=abc	

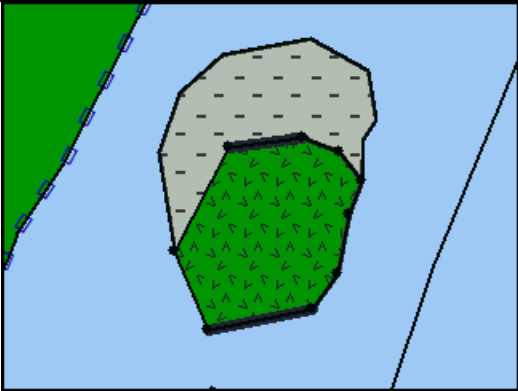
Screen Capture					
Expected Test Results	T1724: A warning “OBJNAM on navigational aid equipment object repeats that of the master object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1725	Type	W
S-58 Description	For each master/slave relationship where all component objects (master and slaves) are of the classes DAYMAR, FOGSIG, LIGHTS, RADSTA, RDOSTA, RETRFL, RTPBCN, SISTAT, SISTAW and/or TOPMAR AND where at least one object DAYMAR or LIGHTS is in the list AND where a DAYMAR or a LIGHTS is not the master object.				
Message	Equipment object does not have coincident DAYMAR or LIGHTS object as a master.				
Solution	Amend relationship so that the equipment object is slave to the LIGHTS or DAYMAR object.		Conformity	12.1.2	
Test Case No. 1	LIGHTS as master and DAYMAR as slave.				
Location	32°22'45.32"S 60°49'32.74"E	S57 Encoding	DAYMAR (P) LIGHTS (P)	SIGPER=4 SIGGRP=(1)	
Screen Capture					
Expected Test Results	T1725: A warning “Equipment object does not have coincident DAYMAR or LIGHTS object as a master” must be triggered.				
Secondary Errors	None				
Test Case No. 2	FOGSIG as master and LIGHTS as slave.				
Location	32°22'45.79"S 60°49'31.42"E	S57 Encoding	FOGSIG (P) LIGHTS (P)		

Screen Capture					
Expected Test Results	T1725: A warning “Equipment object does not have coincident DAYMAR or LIGHTS object as a master” must be triggered.				
Secondary Errors	T1722a: An additional warning “Equipment object which is not a slave of a structure or another equipment object” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1726	Type	C
S-58 Description	If the M_COVR object where CATCOV=1 does not EQUAL the combined coverage of M_NSYS objects where MARSYS is not Null.				
Message	Data coverage not completely covered by M_NSYS objects with a value for MARSYS.				
Solution	Ensure complete coverage of M_NSYS objects with MARSYS populated.		Conformity	12.2	
Test Case No. 1	M_NSYS not overlapping a portion of DEPRE (A).				
Location	32°23'34.00"S 60°50'22.13"E	S57 Encoding	M_NSYS (A)		
Screen Capture					
Expected Test Results	T1726: An error “Data coverage not completely covered by M_NSYS objects with a value for MARSYS” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	T1732	Type	E
S-58 Description	For each BCNLAT object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on BCNLAT object.				

Solution	Remove VERDAT or VERACC.		Conformity	12.3.1	
Test Case No. 1	BCNLAT with VERDAT and VERACC attributes encoded.				
Location	32°22'46.78"S60°50'16.25"E	S57 Encoding	BCNLAT (P)	VERACC=10 VERDAT=3	
Screen Capture					
Expected Test Results	T1732: 2 errors “VERDAT or VERACC are present on BCNLAT object” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSPA or VERCCL” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1765a	Type	W
S-58 Description	If the cell contains both M_QUAL and M_ACCY objects and their combined coverage does not EQUAL the M_COVR objects where CATCOV equals (1) [coverage available].				
Message	M_QUAL or M_ACCY do not provide full coverage.				
Solution	Amend objects to provide complete coverage.		Conformity	2.2.3.1	
Test Case No. 1	M_QUAL contains a hole.				
Location	32°23'42.48"S 60°49'48.28"E	S57 Encoding	M_QUAL (A)		
Screen Capture					
Expected Test Results	T1765a: A warning “M_QUAL or M_ACCY do not provide full coverage” must be triggered.				
Secondary Errors	T0549: An additional error “CSCL is not populated with a value” must be triggered.				
Dataset Name	AA500004	S-58 test No.	T1765b	Type	W
S-58 Description	If objects of type M_QUAL and M_ACCY OVERLAP.				

Message	M_QUAL and M_ACCY objects overlap.				
Solution	Amend objects to remove overlap.			Conformity	2.2.4.1
Test Case No. 1	M_ACCY overlapping M_QUAL.				
Location	32°23'42.66"S 60°49'35.51"E	S57 Encoding	M_ACCY (A) M_QUAL (A)		
Screen Capture					
Expected Test Results	T1765b: A warning “M_QUAL and M_ACCY objects overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500004	S-58 test No.	T1766	Type	E
S-58 Description	For each attribute of type PICREP, TXTDSC and NTXTDS where the attribute value contains more than one file name.				
Message	PICREP, TSTDSC or NTXTDS contain more than one file name.				
Solution	Amend value to only contain a single file name.			Conformity	2.3 and 4.8.20
Test Case No. 1	LNDMRK with multiple text files in PICREP, TXTDSC and NTXTDS.				
Location	32°22'05.11"S60°51'48.50"E	S57 Encoding	LNDMRK (P)	PICREP=US003151.TIF ;US003150.TIF TXTDSC=US003151.TXT T;US003152.TXT NTXTDS=US003151.T XT;US003152.TXT	
Screen Capture					
Expected Test Results	T1766: 3 errors “PICREP, TSTDSC or NTXTDS contain more than one file name” must be triggered.				
Secondary Errors	T1005: 3 additional errors “Referenced files are missing or their names are non-conformant” must be triggered.				

Dataset Name	AA500004	S-58 test No.	T1767	Type	W
S-58 Description	For each edge which is COINCIDENT with a SBDARE object of type area where WATLEV = 4 [covers and uncovers] AND is COINCIDENT with an area DEPARE or DRGARE object where DRVAL2=< 0 AND is COINCIDENT with an area DEPARE or DRGARE object where DRVAL1 >=0 OR an UNSARE object AND is not COINCIDENT with a DAMCON, GATCON, SLCONS or LNDARE object AND is COINCIDENT with a DEPCNT object where VALDCO = 0.				
Message	Missing zero metre depth contour.				
Solution	Capture an appropriate zero metre DEPCNT.		Conformity	5.2	
Test Case No. 1	SBDARE without a surrounding DEPCNT.				
Location	32°22'30.47"S60°49'40.53"E	S57 Encoding	UNSARE (A) SBDARE (A) DEPARE (A) DEPARE (A) DRGARE (A)	NATSUR=9 WATLEV=4 DRVAL2=0 DRVAL1=0 DRVAL1=1	
Screen Capture					
Expected Test Results	T1767: 4 warnings “Missing zero metre depth contour” must be triggered.				
Secondary Errors	None				
Test Case No. 2	SBDARE surrounded by LNDARE, DAMCON, GATCON and SLCONS.				
Location	32°22'28.81"S 60°49'41.20"E	S57 Encoding	UNSARE (A) SBDARE (A) DEPARE (A) DEPARE (A) DRGARE (A) LNDARE (L) DAMCON (L) GATCON (L) SLCONS (L)	NATSUR=9 WATLEV=4 DRVAL2=0 DRVAL1=0 DRVAL1=1	

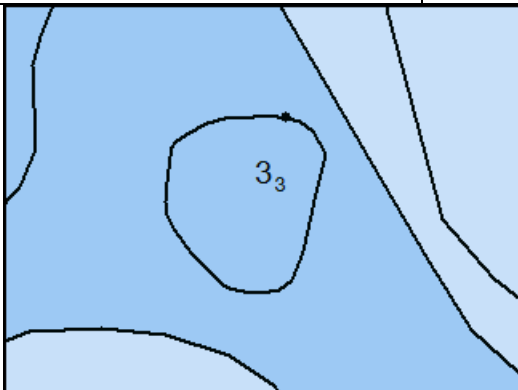
Screen Capture		
Expected Test Results	T1767: 4 warnings “Missing zero metre depth contour” must not be triggered.	
Secondary Errors	None	

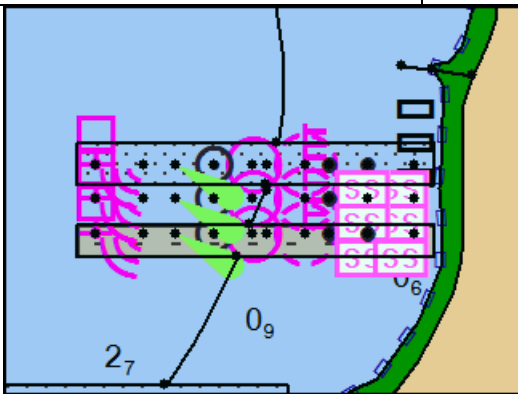
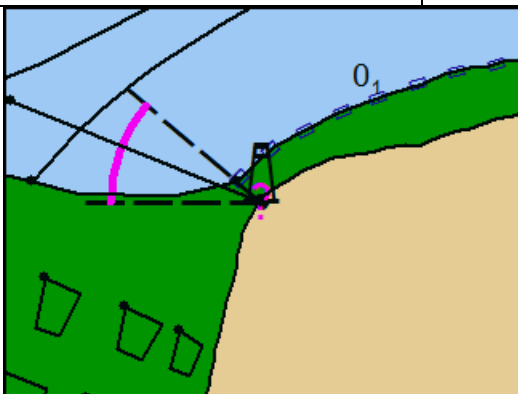
2.5. Test Dataset: AA500005

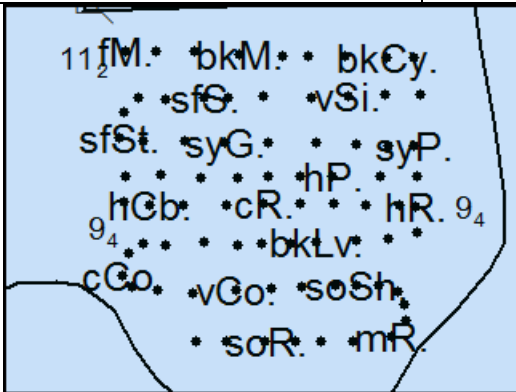
List of S-58 Recommended ENC Validation Checks covered in this section:

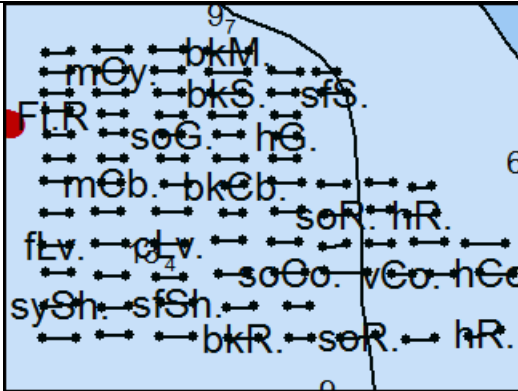
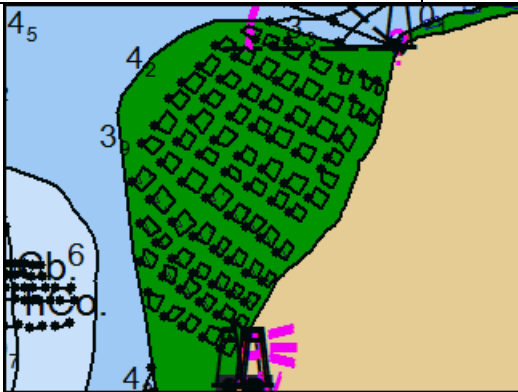
S-58 Test	Description																																																																																																																																																																					
1771	For each edge which is COINCIDENT with a DEPCNT object AND two area DEPART objects AND maximum DRVAL2 <= VALDCO < minimum DRVAL1 AND minimum DRVAL2 = VALDCO AND the edge is COINCIDENT with a DEPART object of type line.																																																																																																																																																																					
1775	For each equipment object (UOC 12.1.1) which is WITHIN a DEPART, DRGARE or UNSARE AND does not have a navigational aid structure as a master OR does not TOUCH a HULKES, LNDARE or PYLONS point object OR does not TOUCH a line CBLOHD, CONVYR, COALNE, DAMCON (with CATDAM = 3 [flood barrage]), BRIDGE, FLODOC, LNDARE, MORFAC, PIPOLD, PONTON or SLCONS object OR is not WITHIN a area CONVYR or BRIDGE object.																																																																																																																																																																					
1778	For each LIGHTS object where CATLIT = 1 [directional function] AND SECTR1 – SECTR2 is greater than 10.																																																																																																																																																																					
1780	For each SBDARE object where NATSUR AND NATQUA are not Null AND the combination of values of NATSUR AND NATQUA are not as listed in the table below;																																																																																																																																																																					
	<table><tr><td>NATQUA</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>NATSUR</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td><td>x</td></tr><tr><td>2</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td>x</td><td></td><td></td><td>x</td></tr><tr><td>3</td><td>x</td><td>x</td><td>x</td><td></td><td>x</td><td>x</td><td>x</td><td></td><td></td><td>x</td></tr><tr><td>4</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td>x</td><td></td><td>x</td><td>x</td><td>x</td></tr><tr><td>5</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr><tr><td>6</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr><tr><td>7</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td></td><td></td></tr><tr><td>14</td><td></td><td></td><td></td><td>x</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>17</td><td>x</td><td>x</td><td>x</td><td>x</td><td></td><td></td><td></td><td></td><td>x</td><td></td></tr><tr><td>18</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>x</td><td>x</td><td></td></tr></table>	NATQUA	1	2	3	4	5	6	7	8	9	10	NATSUR											1					x	x	x	x	x	x	2					x	x	x			x	3	x	x	x		x	x	x			x	4	x	x	x			x		x	x	x	5	x	x	x					x	x		6	x	x	x					x	x		7	x	x	x					x	x		8								x	x		9								x	x		11								x			14				x							17	x	x	x	x					x		18								x	x	
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1781	For each BUISGL or LNDMRK object which is part of a master slave relationship AND references a LIGHTS object where CATLIT is not (6), (8) or (9) as slave AND FUNCTN does not contain value (33) [light support].																																																																																																																																																																					
1782	For each SWPARE object which OVERLAPS another SWPARE object.																																																																																																																																																																					
1783a	For each object of type area where WATLEV = 4 [covers and uncovers] OVERLAPS a DEPART object where DRVAL1>=0.																																																																																																																																																																					
1783b	For each object of type area where WATLEV = 5 [awash] OVERLAPS a DEPART object where DRVAL1 > 0.																																																																																																																																																																					
1784	For each spatial object where the value of HORDAT, POSACC or QUAPOS is Null.																																																																																																																																																																					
1785	For each object with CATLMK = 18 [windmill] or 19 [windmotor] where CONDTN = 4 [wingless].																																																																																																																																																																					
1786	For each object of type Area where WATLEV equals (2) [always dry] AND is not WITHIN a LNDARE object of type area.																																																																																																																																																																					
1787	For each NAVLNE and RECTRC which are COINCIDENT AND have values of ORIENT which are not equal or reciprocal.																																																																																																																																																																					
1788	For each NAVLNE object which is COINCIDENT with a RECTRC object AND are not part of the same C_AGGR object.																																																																																																																																																																					
1789	For each object of type DWRTCL, NAVLNE, RECTRC and RCRTCL of type line where ORIENT is not Null AND the orientation of the spatial geometry is more than 5 degrees greater than or less than the value (or reciprocal) of the value of ORIENT.																																																																																																																																																																					
1790a	For each LIGHTS object where ORIENT is not Null AND SECTR1 OR SECTR2 are not Null.																																																																																																																																																																					
1790b	For each LIGHTS object where ORIENT is not Null AND it is aggregated to a RECTRC or NAVLNE within a collection object C_AGGR.																																																																																																																																																																					
1790c	For each LIGHTS object where ORIENT is not Null AND the structure object of this LIGHTS object is aggregated to a RECTRC or NAVLNE within a collection object C_AGGR.																																																																																																																																																																					
1791	For each NAVLNE object where CATNAV = 3 which is not COINCIDENT with a RECTRC where CATTRK = 1.																																																																																																																																																																					
1793	For each master/slave relationship which references more than one LIGHTS object AND all of the LIGHTS objects are encoded with LITVIS = 6 or 7.																																																																																																																																																																					
1794	For each LIGHTS object where CATLIT = (1) AND is a slave in a master/slave relationship AND the master object is any of BOYXXX, LITVES or LITFLT.																																																																																																																																																																					
1795	For each object which is a master in a master/slave relationship AND where DATEND, DATSTA, PEREND or PERSTA are not Null AND the values of DATEND, DATSTA, PEREND or PERSTA are not identical to those on the slave objects.																																																																																																																																																																					
1797	For each of the object type, geometry and attribute combinations in the table below;																																																																																																																																																																					

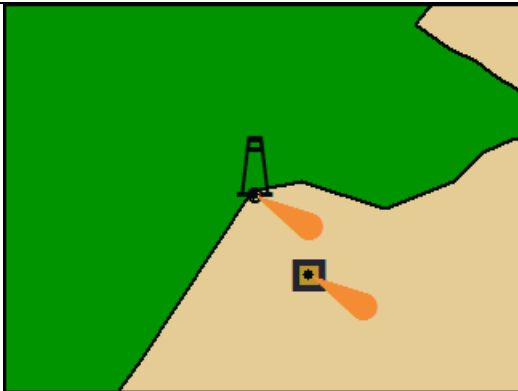
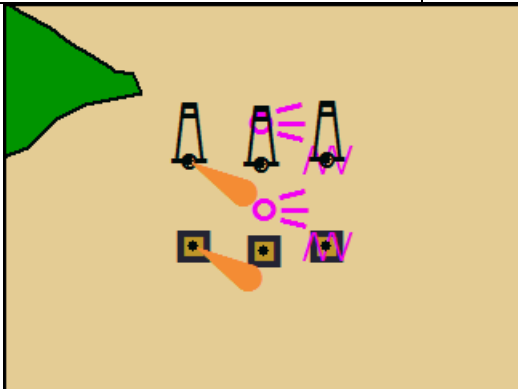
Object	Geometry	Attributes
BRIDGE	P	-
DAMCON	P	CATDAM ≠ 3
GRIDRN	P	
PIPSOL	P	
PRDARE	P	CATPRA = not present
RAPIDS	P	
ROADWY	P	
RUNWAY	P	
SLOGRD	A	CATSLO = 1,2,3,4,5,7 AND CONRAD ≠ 1, or CATSLO = not present
TUNNEL	P	
VEGATN	P,A	CATVEG = 1, 10, 11, 12 or not present
WATFAL	P	

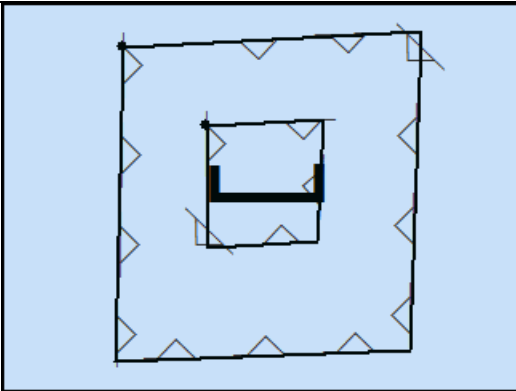
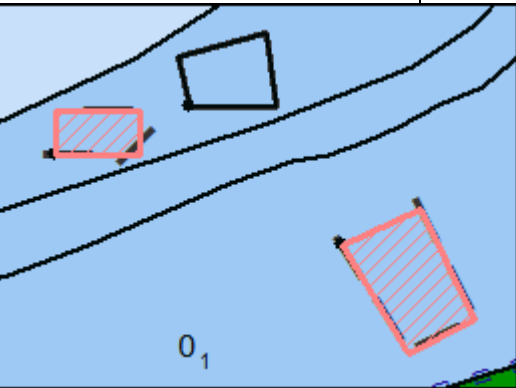
Dataset Name	AA500005	S-58 test No.	T1771	Type	E
S-58 Description	For each edge which is COINCIDENT with a DEPCNT object AND two area DEPARE objects AND maximum DRVAL2 <= VALDCO < minimum DRVAL1 AND minimum DRVAL2 = VALDCO AND the edge is COINCIDENT with a DEPARE object of type line.				
Message	VALDCO on DEPCNT between two DEPARE objects has illogical value.				
Solution	Amend VALDCO to a logical value.		Conformity	5.4.3	
Test Case No. 1	DEPCNT with incorrect VALDCO attribute encoded.				
Location	32°24'06.59"S 60°50'09.00"E	S57 Encoding	DEPARE (A) DEPCNT (L) DEPARE (A)	DRVAL1=1.8 DRVAL2=3.6 VALDCO=5.4 DRVAL1=3.6 DRVAL2=5.4	
Screen Capture					
Expected Test Results	T1771: An error “VALDCO on DEPCNT between two DEPARE objects has illogical value” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1775	Type	C
S-58 Description	For each equipment object (UOC 12.1.1) which is WITHIN a DEPARE, DRGARE or UNSARE AND does not have a navigational aid structure as a master OR does not TOUCH a HULKES, LNDARE or PYLONS point object OR does not TOUCH a line CBLOHD, CONVYR, COALNE, DAMCON (with CATDAM = 3 [flood barrage]), BRIDGE, FLODOC, LNDARE, MORFAC, PIPOHD, PONTON or SLCONS object OR is not WITHIN a area CONVYR or BRIDGE object.				
Message	Equipment object within DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object.				
Solution	Ensure equipment object is encoded with an appropriate structure object or underlying object.		Conformity	12.1.1 and 12.8.8	
Test Case No. 1	10 objects (as per UOC 12.1.1) in DEPARE, DRGARE and UNSARE without any supporting structure.				
Location	32°24'06.25"S 60°50'48.42"E	S57 Encoding	DAYMAR (P) FOGSIG (P) LIGHTS (P) RADSTA (P) RDOSTA (P) RETRFL (P) RTPBCN (P) SISTAT (P)	3x 3x 3x 3x 3x 3x 3x 3x	

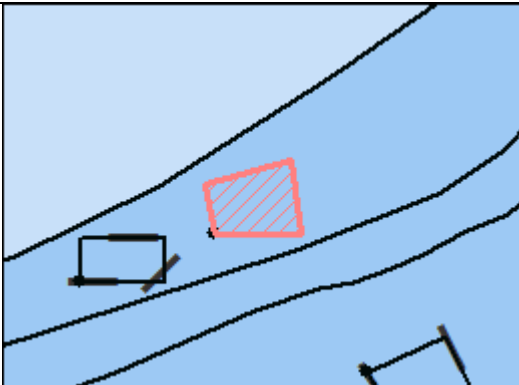
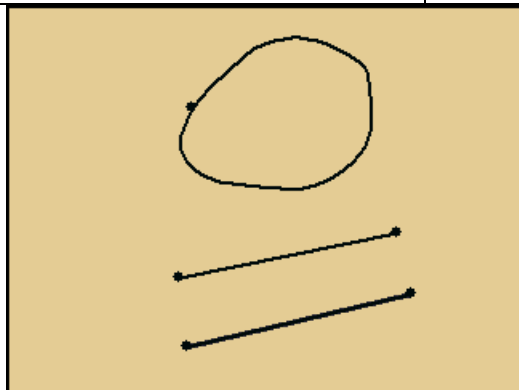
			SISTAW (P) TOPMAR (P) DEPARE (A) DRGARE (A) UNSARE (A)	3x 3x	
Screen Capture					
Expected Test Results	T1775: 30 errors “Equipment object within DEPARE, DRGARE or UNSARE without an appropriate supporting structure object or underlying object” must be triggered.				
Secondary Errors	T1722a: 27 additional warnings “Equipment object which is not a slave of a structure or another equipment object” must be triggered. T0054b: 3 additional errors “CRANES, BUISL, FORSTC, LNDMRK, DAYMAR or SILTNK not situated on a suitable supporting object” must be triggered.				
Dataset Name	AA500005	S-58 test No.	T1778	Type	E
S-58 Description	For each LIGHTS object where CATLIT = 1 [directional function] AND SECTR1 – SECTR2 is greater than 10.				
Message	LIGHTS object with CATLIT = (1) with a sector arc greater than 10 degrees.				
Solution	Check SECTR1/2 values, or remove CATLIT = (1).		Conformity	12.8.6.5 and Appendix A Ch.2 (code 37)	
Test Case No. 1	LIGHTS with the difference between SECTR1 and SECTR2 being greater than 10 degrees.				
Location	32°24'29.00"S 60°50'18.20"E	S57 Encoding	LIGHTS (P) LNDMRK (P)	CATLIT=1 SECTR1=90 SECTR2=130	
Screen Capture					
Expected Test Results	T1778: An error “LIGHTS object with CATLIT = (1) with a sector arc greater than 10 degrees” must				

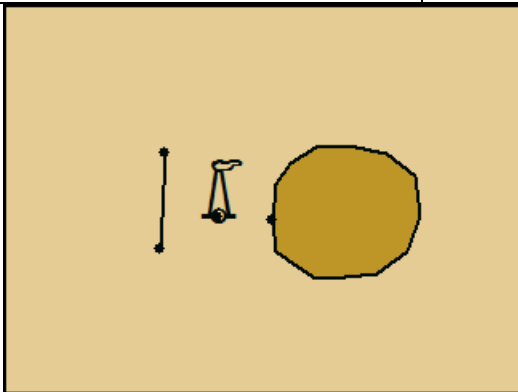
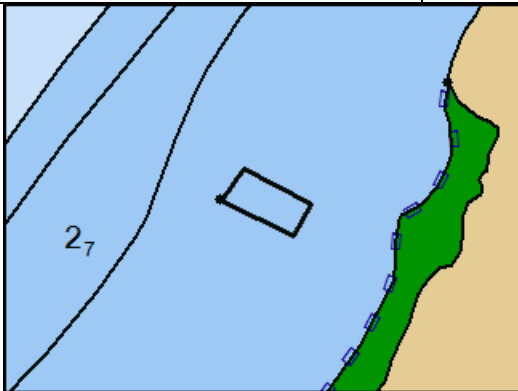
	be triggered.										
Secondary Errors	None										
Dataset Name	AA500005				S-58 test No.		T1780		Type	W	
S-58 Description	For each SBDARE object where NATSUR AND NATQUA are not Null AND the combination of values of NATSUR AND NATQUA are not as listed in the table below;										
	NATQUA	1	2	3	4	5	6	7	8	9	10
	NATSUR										
	1					x	x	x	x	x	x
	2					x	x	x			x
	3	x	x	x		x	x	x			x
	4	x	x	x			x		x	x	x
	5	x	x	x					x	x	
	6	x	x	x					x	x	
	7	x	x	x					x	x	
	8								x	x	
	9								x	x	
	11								x		
	14				x						
	17	x	x	x	x					x	
	18								x	x	
Message	Illogical combination of NATSUR and NATQUA.										
Solution	Amend NATSUR and NATQUA to logical combinations.					Conformity		Logical consistency			
Test Case No. 1	78 SBDARE (P) objects, other than combinations shown in the table.										
Location	32°24'03.77"S 60°50'31.26"E				S57 Encoding		SBDARE (P)		78x		
Screen Capture											
Expected Test Results	T1780: 78 warnings “Illogical combination of NATSUR and NATQUA” must be triggered.										
Secondary Errors	None										
Test Case No. 2	78 SBDARE (L) objects, other than combinations shown in the table.										
Location	32°24'42.86"S 60°49'44.05"E				S57 Encoding		SBDARE (L)		78x		

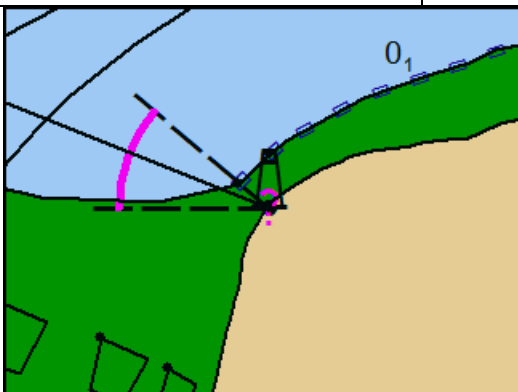
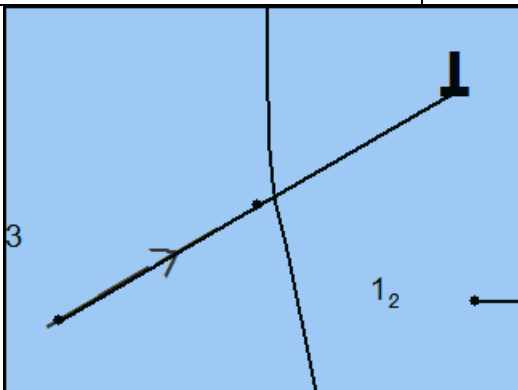
Screen Capture					
Expected Test Results	T1780: 78 warnings “Illogical combination of NATSUR and NATQUA” must be triggered.				
Secondary Errors	None				
Test Case No. 3	78 SBDARE (A) objects with attributes assigned, other than combinations shown in the table.				
Location	32°24'35.19"S 60°50'06.54"E	S57 Encoding	SBDARE (A)	78x	
Screen Capture					
Expected Test Results	T1780: 78 warnings “Illogical combination of NATSUR and NATQUA” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1781	Type	W
S-58 Description	For each BUISGL or LNDMRK object which is part of a master slave relationship AND references a LIGHTS object where CATLIT is not (6), (8) or (9) as slave AND FUNCTN does not contain value (33) [light support].				
Message	BUISGL or LNDMRK object with a slave LIGHTS object without FUNCTN = (33) [light support].				
Solution	Populate FUNCTN = (33) [light support].		Conformity	12.3.2 and S-52	
Test Case No. 1	LNDMRK and BUISGL where FUNCTN is not encoded.				
Location	32°24'50.71"S 60°50'05.51"E	S57 Encoding	BUISGL (P) LNDMRK (P) LIGHTS (P)	FUNCTN=UNDEFINED FUNCTN=UNDEFINED	

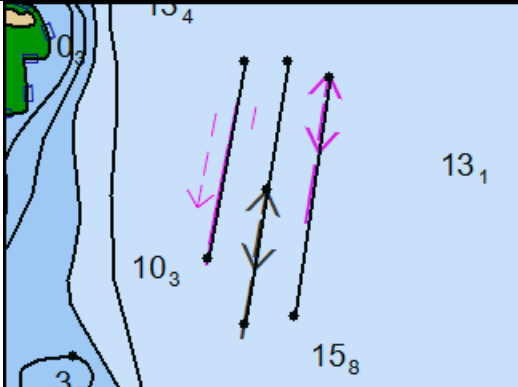
Screen Capture					
Expected Test Results	T1781: 2 warnings “BUISGL or LNDMRK object with a slave LIGHTS object without FUNCTN = (33) [light support]” must be triggered.				
Secondary Errors	None				
Test Case No. 2	LIGHTS with CATLIT encoded as 6, 8 and 9.				
Location	32°24'50.67"S 60°50'07.19"E	S57 Encoding	LIGHTS (P) BUISGL (P) LNDMRK (P)	CATLIT=6 CATLIT=8 CATLIT=9	
Screen Capture					
Expected Test Results	T1781: 6 warnings “BUISGL or LNDMRK object with a slave LIGHTS object without FUNCTN = (33) [light support]” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1782	Type	E
S-58 Description	For each SWPARE object which OVERLAPS another SWPARE object.				
Message	SWPARE objects overlap.				
Solution	Amend objects so that there is no overlap.		Conformity	Logical consistency	
Test Case No. 1	SWPARE overlapping another SWPARE.				
Location	32°23'57.78"S 60°50'29.16"E	S57 Encoding	SWPARE (A)		

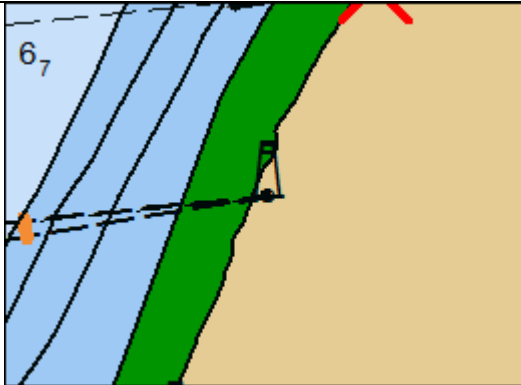
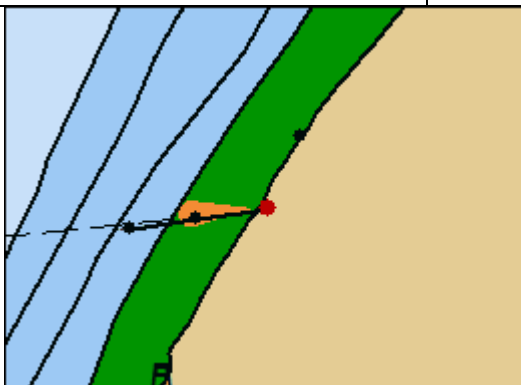
Screen Capture					
Expected Test Results	T1782: An error “SWPARE objects overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1783a	Type	E
S-58 Description	For each object of type area where WATLEV = 4 [covers and uncovers] OVERLAPS a DEPARE object where DRVAL1>=0.				
Message	Illogical value of WATLEV given the DRVAL1 of the underlying object.				
Solution	Populate appropriate value of WATLEV.		Conformity	Logical consistency	
Test Case No. 1	SLCONS (A) with WATLEV=4.				
Location	32°24'23.11"S 60°50'27.58"E	S57 Encoding	SLCONS(A)	WATLEV=4	
Screen Capture					
Expected Test Results	T1783a: 2 errors “Illogical value of WATLEV given the DRVAL1 of the underlying object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1783b	Type	E
S-58 Description	For each object of type area where WATLEV = 5 [awash] OVERLAPS a DEPARE object where DRVAL1 > 0.				
Message	Illogical value of WATLEV given the DRVAL1 of the underlying object.				
Solution	Populate appropriate value of WATLEV.		Conformity	Logical consistency	
Test Case No. 1	SLCONS (A) with WATLEV=5.				
Location	32°24'21.45"S 60°50'27.97"E	S57 Encoding	SLCONS(A)	WATLEV=5	

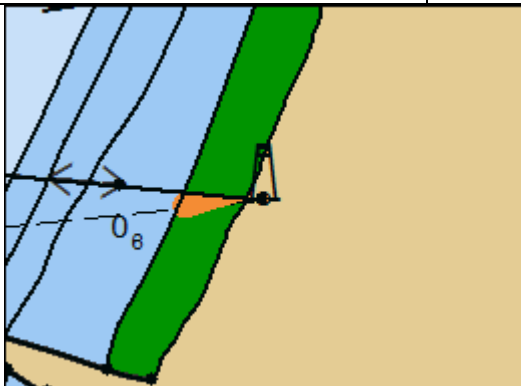
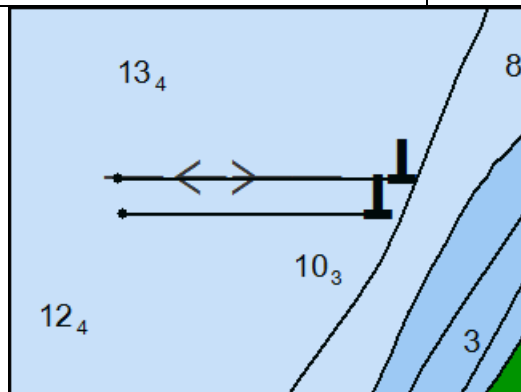
Screen Capture					
Expected Test Results	T1783b: An error “Illogical value of WATLEV given the DRVAL1 of the underlying object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1784	Type	W
S-58 Description	For each spatial object where the value of HORDAT, POSACC or QUAPOS is Null.				
Message	POSACC, HORDAT or QUAPOS populated with an unknown value.				
Solution	Remove unknown value or populate with a known value.	Conformity	Logical consistency		
Test Case No. 1	LNDELV, ROADWY and RAILWAY lines with attribute values encoded.				
Location	32°25'14.62"S 60°49'58.03"E	S57 Encoding	LNDELV (L) ROADWY (L) RAILWAY (L)	HORDAT=UNKNOWN POSACC =UNKNOWN QUAPOS= UNKNOWN	
Screen Capture					
Expected Test Results	T1784: 3 warnings “POSACC, HORDAT or QUAPOS populated with an unknown value” must be triggered.				
Secondary Errors	T1502: An additional error “HORDAT used on an object” must be triggered.				
Dataset Name	AA500005	S-58 test No.	T1785	Type	E
S-58 Description	For each object with CATLMK = 18 [windmill] or 19 [windmotor] where CONDTN = 4 [wingless].				
Message	Object other than windmill or windmotor with CONDTN = 4 [wingless].				

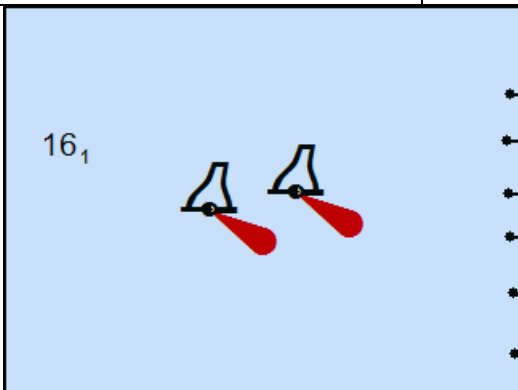
Solution	Remove value of CONDTN or use LNDMRK object.		Conformity	Logical consistency	
Test Case No. 1	LNDMRK with CONDTN=4 and CATLMK=3.				
Location	32°25'32.12"S 60°49'50.68"E	S57 Encoding	LNDMRK (A, L, P)	CATLMK=3 CONDTN=4 CONVIS=1	
Screen Capture					
Expected Test Results	T1785: 3 errors “Object other than windmill or windmotor with CONDTN = 4 [wingless]” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1786	Type	E
S-58 Description	For each object of type Area where WATLEV equals (2) [always dry] AND is not WITHIN a LNDARE object of type area.				
Message	Area object with WATLEV = (2) but not on an area LNDARE object.				
Solution	Amend WATLEV value or ensure object is on land.		Conformity	Logical consistency	
Test Case No. 1	SLCONS (A) with WATLEV=2.				
Location	32°25'32.22"S 60°49'33.25"E	S57 Encoding	SLCONS (A)	WATLEV=2	
Screen Capture					
Expected Test Results	T1786: An error “Area object with WATLEV = (2) but not on an area LNDARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1787	Type	E

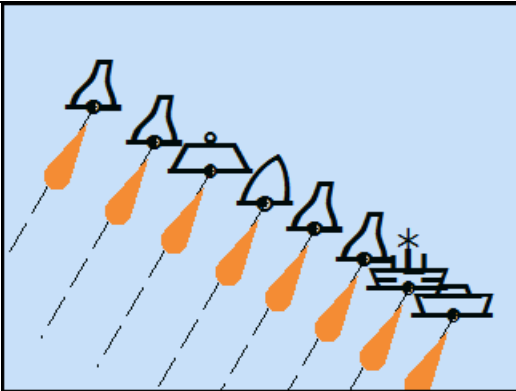
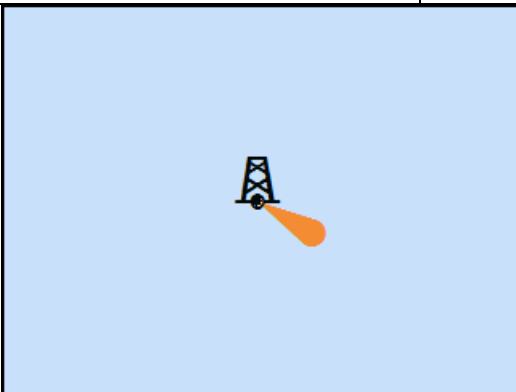
S-58 Description	For each NAVLNE and RECTRC which are COINCIDENT AND have values of ORIENT which are not equal or reciprocal.				
Message	ORIENT values for NAVLNE and RECTRC objects sharing an edge are not equal or reciprocal.				
Solution	Ensure values of ORIENT agree or are reciprocal.	Conformity	Logical consistency		
Test Case No. 1	RECTRC and NAVLNE with different ORIENT values encoded.				
Location	32°24'27.50"S 60°50'13.86"E	S57 Encoding	RECTRC (L) NAVLNE (L)	ORIENT=116° ORIENT=115°	
Screen Capture					
Expected Test Results	T1787: An error “ORIENT values for NAVLNE and RECTRC objects sharing an edge are not equal or reciprocal” must be triggered.				
Secondary Errors	T1683: An additional error “RECTRC and NAVLNE as part of a C_AGGR do not have consistent values of ORIENT” must be triggered.				
Dataset Name	AA500005	S-58 test No.	T1788	Type	W
S-58 Description	For each NAVLNE object which is COINCIDENT with a RECTRC object AND are not part of the same C_AGGR object.				
Message	NAVLNE and RECTRC share an edge but are not aggregated using C_AGGR.				
Solution	Aggregate objects using C_AGGR object.	Conformity	10.1.2		
Test Case No. 1	RECTRC and NAVLNE with different C_AGGR.				
Location	32°24'00.17"S 60°50'48.44"E	S57 Encoding	RECTRC (L) NAVLNE (L) C_AGGR		
Screen Capture					

Expected Test Results	T1788: A warning “NAVLNE and RECTRC share an edge but are not aggregated using C_AGGR” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1789	Type	C
S-58 Description	For each object of type DWRTCL, NAVLNE, RECTRC and RCRTCL of type line where ORIENT is not Null AND the orientation of the spatial geometry is more than 5 degrees greater than or less than the value (or reciprocal) of the value of ORIENT.				
Message	DWRTCL, NAVLNE, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT.				
Solution	Populate an appropriate value of ORIENT consistent with the geometry of the object.		Conformity	Logical consistency	
Test Case No. 1	DWRTCL, NAVLNE, RECTRC and RCRTCL line objects with attribute values encoded.				
Location	32°24'00.90"S 60°50'15.78"E	S57 Encoding	NAVLNE (L) DWRTCL (L) RECTRC (L) RCRTCL (L)		
Screen Capture					
Expected Test Results	T1789: 4 errors “DWRTCL, NAVLNE, RECTRC or RCRTCL where the orientation of the geometry is not consistent with the value of ORIENT” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1790a	Type	E
S-58 Description	For each LIGHTS object where ORIENT is not Null AND SECTR1 OR SECTR2 are not Null.				
Message	LIGHTS object where ORIENT and SECTR1/SECTR2 are populated.				
Solution	Remove values of SECTR1/SECTR2 or ORIENT.		Conformity	12.8.6.5 and 12.8.6.6	
Test Case No. 1	LIGHTS with attributes ORIENT, SECTR1 and SECTR2 encoded.				
Location	32°25'15.72"S 60°49'44.00"E	S57 Encoding	LIGHTS (P)	SECTR1=80 SECTR2=85 ORIENT=85	

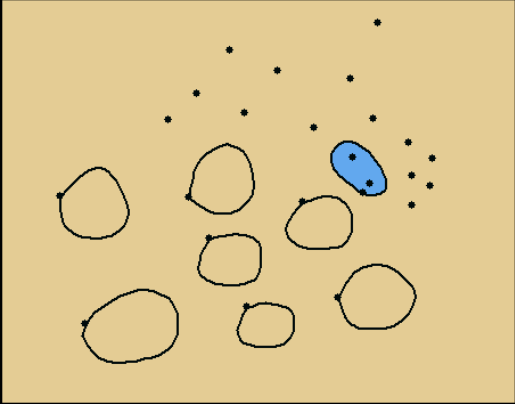
Screen Capture					
Expected Test Results	T1790a: An error “LIGHTS object where ORIENT and SECTR1/SECTR2 are populated” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1790b	Type	E
S-58 Description	For each LIGHTS object where ORIENT is not Null AND it is aggregated to a RECTRC or NAVLNE within a collection object C_AGGR.				
Message	LIGHTS object where ORIENT and is aggregated within a C_AGGR collection object.				
Solution	Remove LIGHTS object from C_AGGR collection object aggregation.		Conformity	12.8.6.5 and 12.8.6.6	
Test Case No. 1	RECTRC, NAVLNE and LIGHTS with ORIENT aggregated in C_AGGR.				
Location	32°25'12.29"S 60°49'46.02"E	S57 Encoding	LIGHTS (P) NAVLNE (L) RECTRC (L) C_AGGR	ORIENT=85	
Screen Capture					
Expected Test Results	T1790b: An error “LIGHTS object where ORIENT and is aggregated within a C_AGGR collection object” must be triggered.				
Secondary Errors	T1722a: An additional warning “Equipment object which is not a slave of a structure or another equipment object” must be triggered.				
Dataset Name	AA500005	S-58 test No.	T1790c	Type	E
S-58 Description	For each LIGHTS object where ORIENT is not Null AND the structure object of this LIGHTS object is aggregated to a RECTRC or NAVLNE within a collection object C_AGGR.				
Message	LIGHTS object where ORIENT and the master structure object is aggregated within a C_AGGR collection object.				

Solution	Remove the LIGHTS structure master object from C_AGGR collection object aggregation.		Conformity	12.8.6.5 and 12.8.6.6	
Test Case No. 1	RECTRC, NAVLNE, LNDMRK (as master) and LIGHTS with attribute ORIENT encoded.				
Location	32°25'19.70"S 60°49'42.13"E	S57 Encoding	LIGHTS (P) NAVLNE (L) RECTRC (L) LNDMRK (P) C_AGGR	ORIENT=85	
Screen Capture					
Expected Test Results	T1790c: An error “LIGHTS object where ORIENT and the master structure object is aggregated within a C_AGGR collection object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1791	Type	E
S-58 Description	For each NAVLNE object where CATNAV = 3 which is not COINCIDENT with a RECTRC where CATTRK = 1.				
Message	NAVLNE with CATNAV =3 but does not share the line geometry of a RECTRC with CATTRK = 1.				
Solution	Ensure NAVLNE with CATNAV = 3 has a coincident RECTRC with CATTRK = 1.		Conformity	Logical consistency	
Test Case No. 1	RECTRC with attribute CATTRK=1. NAVLNE with attribute CATNAV =3				
Location	32°25'03.94"S 60°49'41.42"E	S57 Encoding	RECTRC (L) NAVLNE (L)	CATTRK=1 CATNAV =3	
Screen Capture					
Expected Test Results	T1791: 2 errors “NAVLNE with CATNAV =3 but does not share the line geometry of a RECTRC with CATTRK = 1” must be triggered.				
Secondary Errors	None				

Dataset Name	AA500005	S-58 test No.	T1793	Type	E
S-58 Description	For each master/slave relationship which references more than one LIGHTS object AND all of the LIGHTS objects are encoded with LITVIS = 6 or 7.				
Message	Group of LIGHTS where all are LITVIS = 6 or 7.				
Solution	Confirm values of LITVIS or encode primary light.	Conformity	Logical consistency		
Test Case No. 1	BOYLAT, LIGHTS with attributes LITVIS= 6 and 7.				
Location	32°24'40.47"S 60°49'36.08"E	S57 Encoding	LIGHTS (P) BOYLAT (P)	LITVIS = 6 and 7	
Screen Capture					
Expected Test Results	T1793: 2 errors “Group of LIGHTS where all are LITVIS = 6 or 7” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1794	Type	E
S-58 Description	For each LIGHTS object where CATLIT = (1) AND is a slave in a master/slave relationship AND the master object is any of BOYXXX, LITVES or LITFLT.				
Message	Directional light a slave to a master object of type BOYXXX, LITVES or LITFLT.				
Solution	Amend master to a logical object or remove value of CATLIT.	Conformity	Logical consistency		
Test Case No. 1	BOYCAR, BOYINB, BOYISD, BOYLAT, BOYSAW, BOYSPP, LITFLT and LITVES as the master to LIGHTS with attribute CATLIT=1.				
Location	32°24'50.78"S 60°49'29.80"E	S57 Encoding	BOYCAR (P) BOYINB (P) BOYISD (P) BOYLAT (P) BOYSAW (P) BOYSPP (P) LITFLT (P) LITVES (P) LIGHTS (P)	CATLIT=1	

Screen Capture					
Expected Test Results	T1794: 8 errors “Directional light a slave to a master object of type BOYXXX, LITVES or LITFLT” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500005	S-58 test No.	T1795	Type	C
S-58 Description	For each object which is a master in a master/slave relationship AND where DATEND, DATSTA, PEREND or PERSTA are not Null AND the values of DATEND, DATSTA, PEREND or PERSTA are not identical to those on the slave objects.				
Message	Temporal attributes on a master object do not match those on slave objects.				
Solution	Populate appropriate temporal attributes on slave objects.		Conformity	Logical consistency	
Test Case No. 1	BCNSPP attributed with DATEND, DATSTA, PEREND & PERSTA; LIGHTS without temporal attributes.				
Location	32°23'56.84"S 60°49'34.39"E	S57 Encoding	LIGHTS (P) BCNSPP (P)	DATEND=20130612 DATSTA=20110611 PEREND=20090411 PERSTA=20110203 STATUS=5 DATEND=20120613 DATSTA=20120613 PEREND=20120410 PERSTA=20120204	
Screen Capture					
Expected Test Results	T1795: 4 errors “Temporal attributes on a master object do not match those on slave objects” must be triggered.				
Secondary Errors	None				

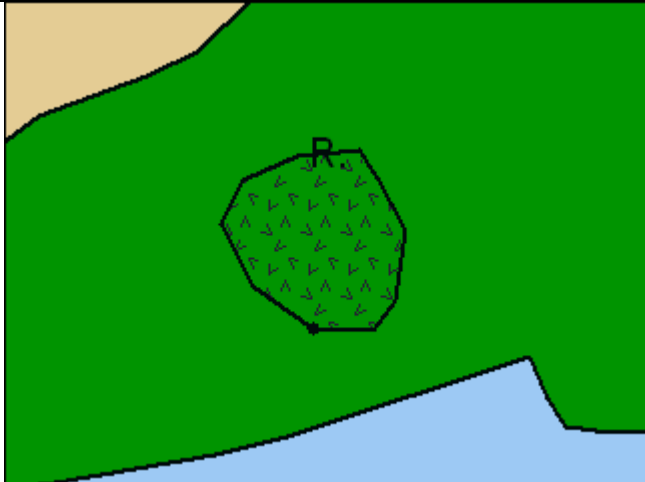
Dataset Name	AA500005		S-58 test No.	T1797	Type	E
S-58 Description	For each of the object type, geometry and attribute combinations in the table below;					
	Object	Geometry	Attributes			
	BRIDGE	P	-			
	DAMCON	P	CATDAM ≠ 3			
	GRIDRN	P				
	PIPSOL	P				
	PRDARE	P	CATPRA = not present			
	RAPIDS	P				
	ROADWY	P				
	RUNWAY	P				
	SLOGRD	A	CATSLO = 1,2,3,4,5,7 AND CONRAD ≠ 1, or CATSLO = not present			
	TUNNEL	P				
	VEGATN	P,A	CATVEG = 1, 10, 11, 12 or not present			
	WATFAL	P				
Message	Object, geometry and attribute combination which do not display in ECDIS present.					
Solution	Delete objects which do not display in ECDIS or use alternative encoding.		Conformity	Clauses 2.5; 4.6.6.6; 4.7.4; 4.7.7.1; 4.7.7.2; 4.7.11; 4.8.3; 4.8.5; 4.8.8; 4.8.10; 4.8.12; 4.8.13 and 11.6.1		
Test Case No. 1	The objects with attributes as listed above.					
Location	32°24'37.84"S 60°51'11.46"E	S57 Encoding	WATFAL (P) TUNNEL (P) RUNWAY (P) ROADWY (P) RAPIDS (P) PIPSOL (P) GRIDRN (P) BRIDGE (P) DAMCON (P) DAMCON (P) VEGATN (P) VEGATN (P) VEGATN (P) VEGATN (P) VEGATN (P) PRDARE (P) SLOGRD (A) SLOGRD (A) SLOGRD (A) SLOGRD (A) SLOGRD (A) SLOGRD (A)	CATDAM=1 CATDAM=2 CATVEG=<Empty> CATVEG=1 CATVEG=10 CATVEG=11 CATVEG=12 CATPRA=<Empty> CATSLO=<Empty> CATSLO=1 CATSLO=2 CATSLO=3 CATSLO=4 CATSLO=5 CATSLO=7		

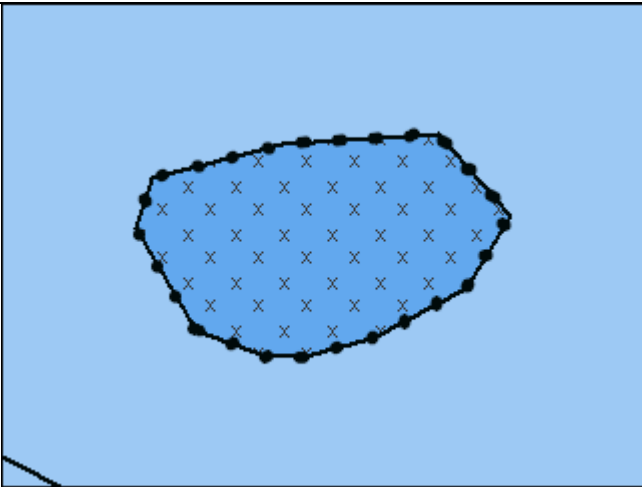
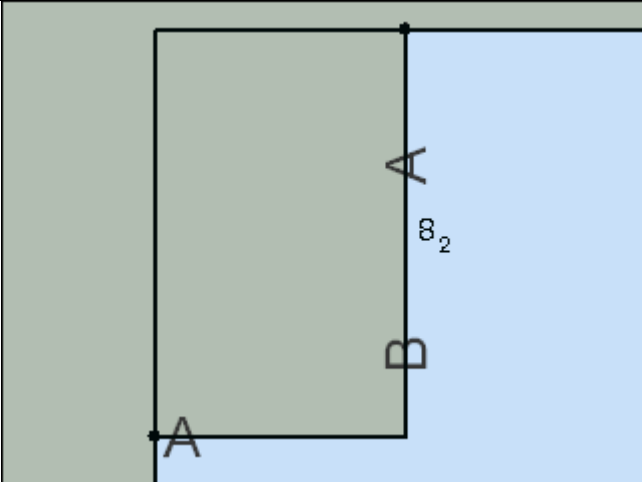
Screen Capture				
Expected Test Results	T1797: 23 errors “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.			
Secondary Errors	None			

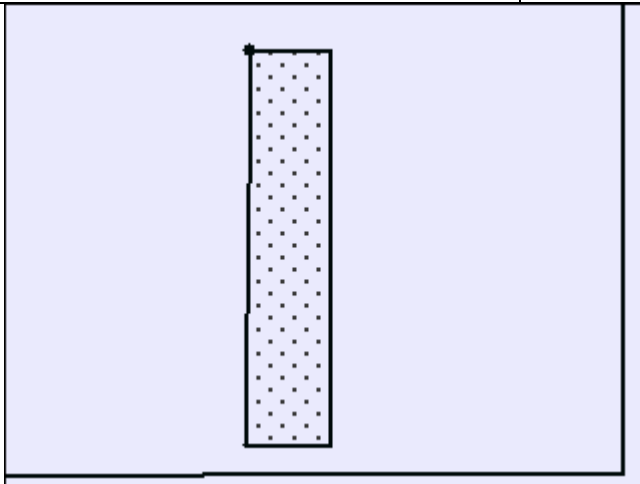
2.6. Test Dataset: AA500006

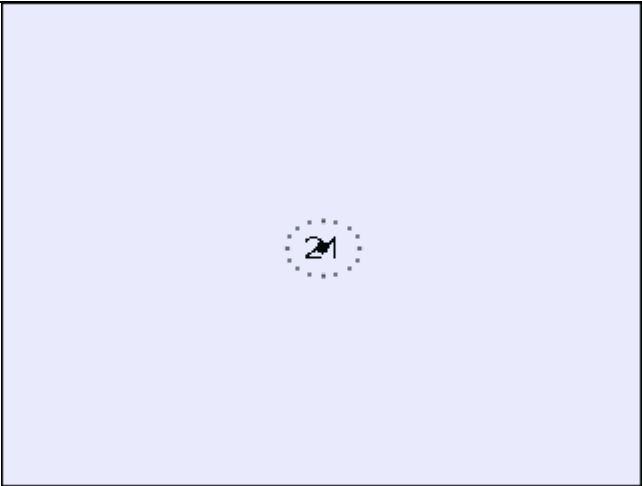
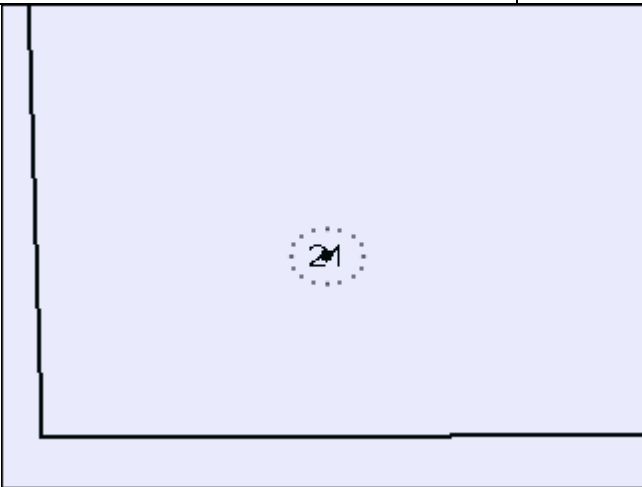
List of S-58 Recommended ENC Validation Checks covered in this section:

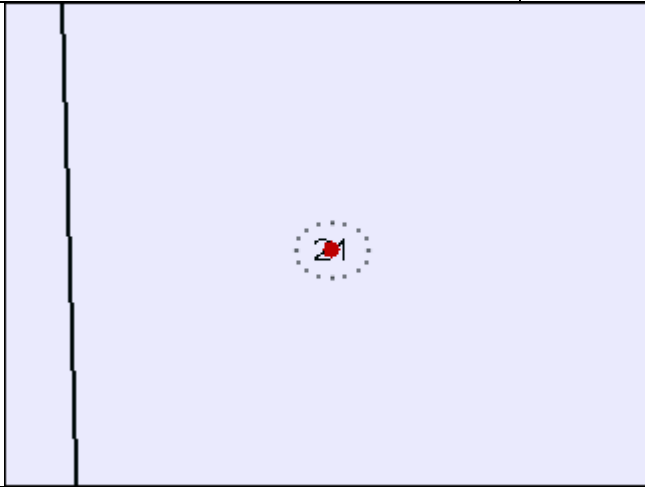
S-58 Test	Description
58	For each SBDARE object of type line which is COINCIDENT with an SBDARE object of type area.
59	For each OBSTRN object of type line which is COINCIDENT with an OBSTRN object of type area.
548	If the combined coverage of M_COVR objects are not equal to the cell limits.
1533	For each DRGARE object where SOUACC is not Null AND it is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.
1534	For each UWTRC object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.
1536	For each WRECKS object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.
1538	For each OBSTRN object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.
1637	For each PYLONS object of type area where WATLEV equals 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding] which is not WITHIN a LNDARE object of type area.
1683	For each C_AGGR object with a single instance of both NAVLNE AND RECTRC AND their ORIENT values are not equal or reciprocal.
1684	For each group of objects forming a measured distance where the beacons and transit lines are not aggregated into a C_AGGR collection object AND the C_AGGR collection objects are not aggregated into another C_AGGR object including the track to be followed.
1685	For each object of type TSSBND is not COINCIDENT with the outer limit of a TSSRON, TSSLPT or TSSZNE.
1686	For each TSELNE object which is not COINCIDENT with two TSSLPT objects OR one TSSLPT object and one ISTZNE object.
1687	For each TSEZNE object which is not COINCIDENT with two TSSLPT objects OR one TSSLPT object and one ISTZNE object OR COINCIDENT with a TSSRON object.
1688	For each TSSCRS object which does not touch greater than 3 TSSLPT or TWRTPT objects.
543	If any TS_TSP attribute value does not conform to the correct structure, (i.e. values separated by commas).
1559	For each T_NHMN object which is not associated (using the C_ASSO collection object with a T_TIMS or T_HMON object).
1562	For each TS_PNH object which is not associated with (using the collection object C_ASSO) a TS_TIS OR TS_PRH object.
1605	For each ICEARE object which is not WITHIN a LNDARE or UNSARE or DEPAARE object of type area.
1625	For each AIRARE or RUNWAY object encoded using a collection object which is not C_ASSO.
1729	For each geo object forming part of a BCNXX or BOYXX object AND MARSYS is not (9) or (10) where the attributes for structure, topmark and lights do not conform to the value of MARSYS on the geo object or the M_NSYS object it is WITHIN.

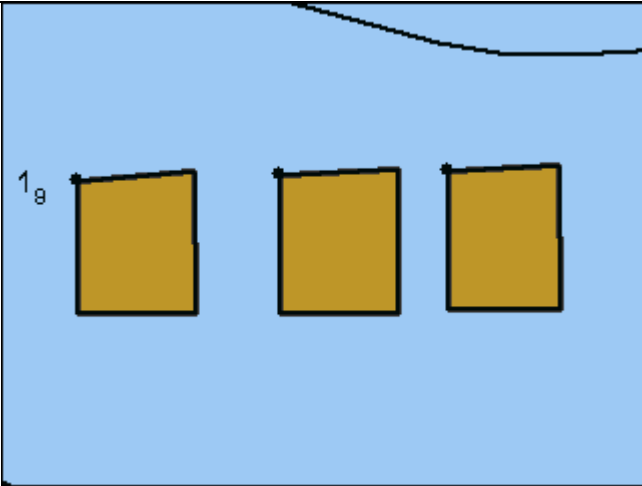
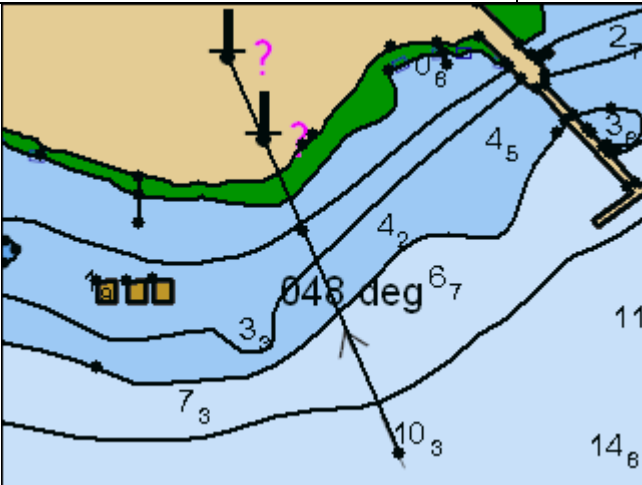
Dataset Name	AA500006	S-58 test No.	T0058	Type	W
S-58 Description	For each SBDARE object of type line which is COINCIDENT with an SBDARE object of type area.				
Message	Line SBDARE bounds an area SBDARE.				
Solution	Delete line SBDARE.	Conformity	Logical consistency		
Test Case No. 1	SBDARE (L) bounding SBDARE (A).				
Location	32°23'52.16"S 60°48'46.25"E	S57 Encoding	SBDARE (A, L)	NATSUR=9 WATLEV=4	
Screen Capture					
Expected Test Results	T0058: A warning “Line SBDARE bounds an area SBDARE” must be triggered.				
Secondary Errors	T1671: An additional warning “Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN” must be triggered.				
Dataset Name	AA500006	S-58 test No.	T0059	Type	W
S-58 Description	For each OBSTRN object of type line which is COINCIDENT with an OBSTRN object of type area.				
Message	Line OBSTRN bounds an area OBSTRN.				
Solution	Amend or delete OBSTRN of type line.	Conformity	Logical consistency		
Test Case No. 1	OBSTRN (L) bounding OBSTRN (A).				
Location	32°24'04.48"S 60°48'14.20"E	S57 Encoding	OBSTRN (A, L)	CATOBS=6 WATLEV=3 QUASOU=2 VALSOU=UNK NOWN	

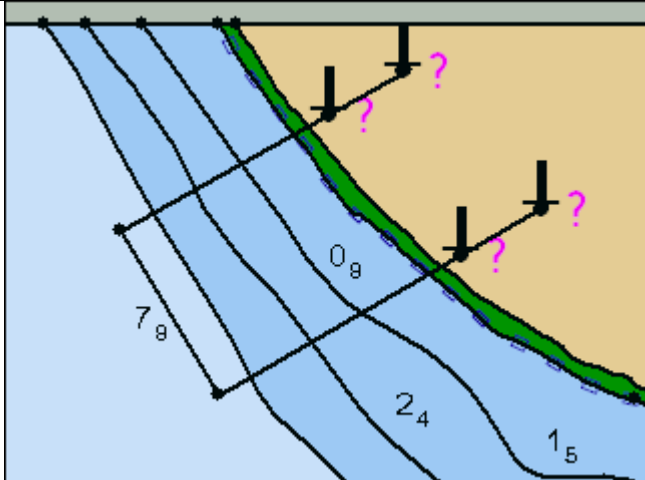
Screen Capture					
Expected Test Results	T0059: A warning “Line OBSTRN bounds an area OBSTRN” must be triggered.				
Secondary Errors	T1671: An additional warning “Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN” must be triggered.				
Dataset Name	AA500006	S-58 test No.	T0548	Type	C
S-58 Description	If the combined coverage of M_COVR objects are not equal to the cell limits.				
Message	Cell not entirely covered by M_COVR objects.				
Solution	Correct M_COVR coverage to match cell limits.	Conformity	3.4		
Test Case No. 1	M_COVR objects with CATCOV=1 and CATCOV=2 overlapping each other.				
Location	32°23'55.33"S 60°46'33.24"E	S57 Encoding	M_COVR (A) M_COVR (A)	CATCOV=1 CATCOV=2	
Screen Capture					
Expected Test Results	T0548: 2 errors “Cell not entirely covered by M_COVR objects” must be triggered.				
Secondary Errors	T0019: 3 additional errors “Edge coincides with the edge of data and USAG does not equal 3 {Exterior boundary truncated by the data limit}” must be triggered. T0519a: An additional error “Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1)” must be triggered. T1726: An additional error “Data coverage not completely covered by M_NSYS objects with a value for MARSYS” must be triggered. T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be				

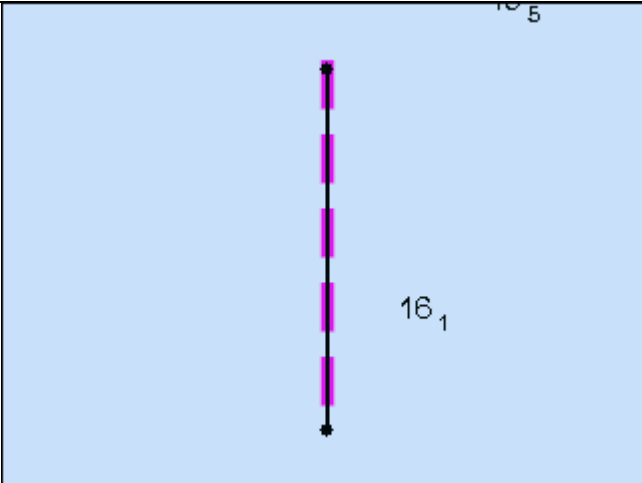
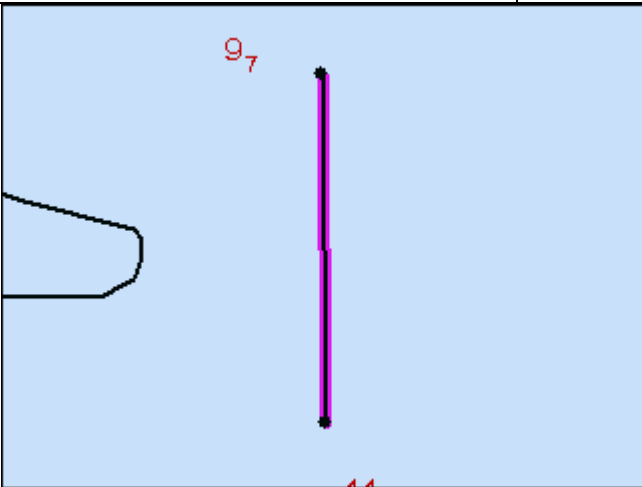
	triggered. T0554: An additional error “edge is shared by ‘m_covr’ with ‘catcov=1’ and has no TG1 object” must be triggered. T0501: An additional error “Check that cells are rectangular” must be triggered.				
Dataset Name	AA500006	S-58 test No.	T1533	Type	E
S-58 Description	For each DRGARE object where SOUACC is not Null AND it is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.				
Message	SOUACC on DRGARE is equivalent to or degrades the value of CATZOC on the underlying M_QUAL object.				
Solution	Amend CATZOC on M_QUAL.		Conformity	2.2.3.1	
Test Case No. 1	DRGARE (A) SOUACC value that degrades the accuracy indicated by the M_QUAL CATZOC value.				
Location	32°25'14.65"S 60°48'40.00"E	S57 Encoding	M_QUAL (A) DRGARE (A)	CATZOC=1 DRVAL1=20 SOUACC=5	
Screen Capture					
Expected Test Results	T1533: An error “SOUACC on DRGARE is equivalent to or degrades the value of CATZOC on the underlying M_QUAL object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1534	Type	E
S-58 Description	For each UWTROC object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.				
Message	SOUACC on UWTROC degrades the value of CATZOC on the underlying M_QUAL object.				
Solution	Amend CATZOC on M_QUAL.		Conformity	2.2.3.1	
Test Case No. 1	UWTROC SOUACC value that degrades the accuracy indicated by the M_QUAL CATZOC value.				
Location	32°25'11.24"S 60°48'42.90"E	S57 Encoding	M_QUAL (A) UWTROC (P)	CATZOC=1 QUASOU=1 SOUACC=5 VALSOU=21 WATLEV=3	

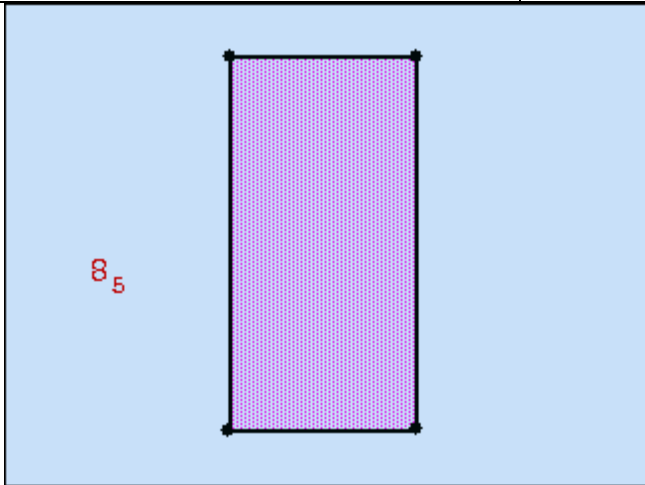
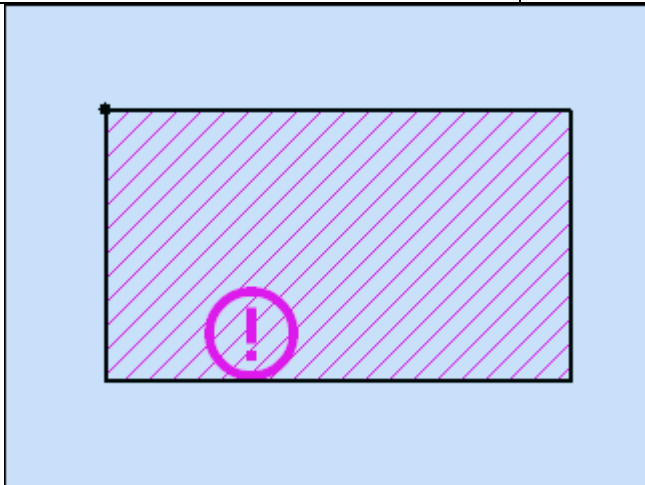
Screen Capture					
Expected Test Results	T1534: An error “SOUACC on UWTROC degrades the value of CATZOC on the underlying M_QUAL object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1536	Type	E
S-58 Description	For each WRECKS object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.				
Message	SOUACC on WRECKS degrades the value of CATZOC on the underlying M_QUAL object.				
Solution	Amend CATZOC on M_QUAL.		Conformity	2.2.3.1	
Test Case No. 1	WRECKS (P) SOUACC value that degrades the accuracy indicated by the M_QUAL CATZOC value.				
Location	32°25'16.55"S 60°48'34.71"E	S57 Encoding	M_QUAL (A) WRECKS (P)	CATZOC=1 CATWRK=2 SOUACC=5 VALSOU=21 WATLEV=3 QUASOU=6	
Screen Capture					
Expected Test Results	T1536: An error “SOUACC on WRECKS degrades the value of CATZOC on the underlying M_QUAL object” must be triggered.				
Secondary Errors	None				

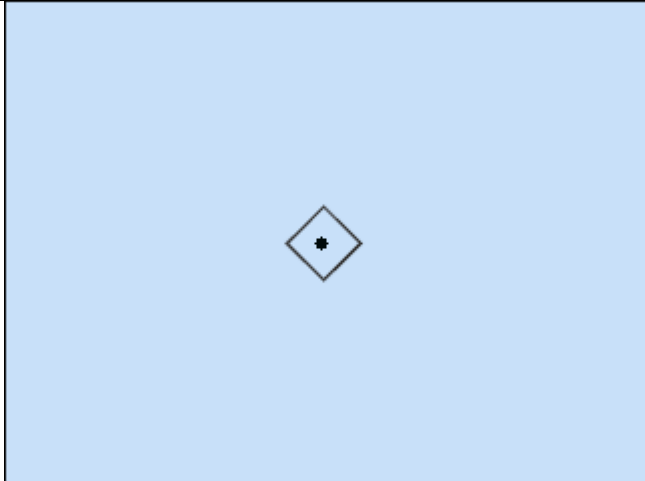
Dataset Name	AA500006	S-58 test No.	T1538	Type	E
S-58 Description	For each OBSTRN object where SOUACC is not Null AND is equivalent to or degrades the value of CATZOC on the M_QUAL object it is WITHIN.				
Message	SOUACC on OBSTRN is equivalent to or degrades the value of CATZOC on the underlying M_QUAL object.				
Solution	Amend SOUACC on M_QUAL or OBSTRN as appropriate.		Conformity	2.2.3.1	
Test Case No. 1	OBSTRN (P) SOUACC value that degrades the accuracy of the M_QUAL (A) CATZOC value.				
Location	32°25'11.20"S 60°48'34.36"E	S57 Encoding	M_QUAL (A) OBSTRN (P)	CATZOC=1 SOUACC=5 VALSOU=21 WATLEV=3 QUASOU=6	
Screen Capture					
Expected Test Results	T1538: An error “SOUACC on OBSTRN is equivalent to or degrades the value of CATZOC on the underlying M_QUAL object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1637	Type	E
S-58 Description	For each PYLONS object of type area where WATLEV equals 1 [partly submerged at high water], 2 [always dry] or 6 [subject to inundation or flooding] which is not WITHIN a LNDARE object of type area.				
Message	PYLONS object with WATLEV 1, 2 or 6 not situated on a LNDARE object.				
Solution	Ensure PYLONS object is situated on LNDARE of type area.		Conformity	4.8.18	
Test Case No. 1	PYLONS (A) with WATLEV=1, 2 or 6 without a coincident LNDARE.				
Location	32°24'06.10"S 60°48'20.59"E	S57 Encoding	PYLONS (A)	CATPYL=unkno wn WATLEV=1,2 or 6	

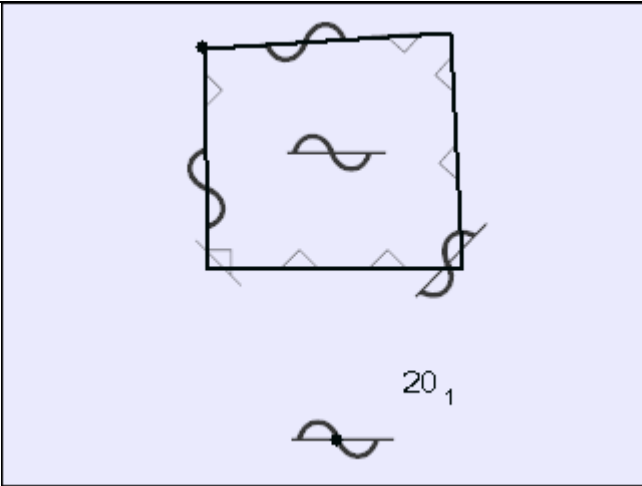
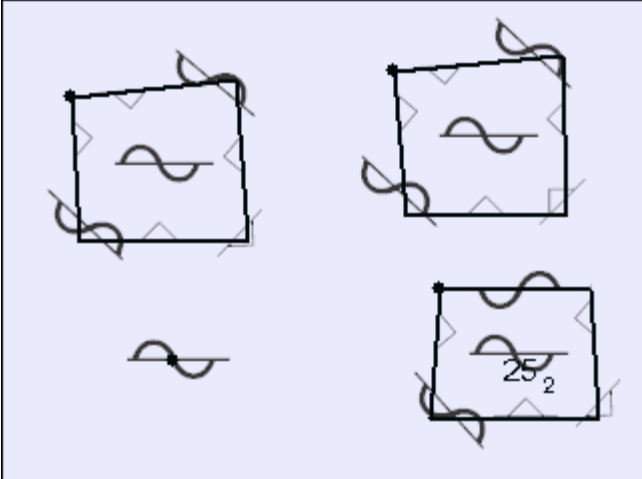
Screen Capture					
Expected Test Results	T1637: 3 errors "PYLONS object with WATLEV 1, 2 or 6 not situated on a LNDARE object" must be triggered.				
Secondary Errors	T1786: An additional error "Area object with WATLEV = (2) but not on an area LNDARE object" must be triggered.				
Dataset Name	AA500006	S-58 test No.	T1683	Type	C
S-58 Description	For each C_AGGR object with a single instance of both NAVLNE AND RECTRC AND their ORIENT values are not equal or reciprocal.				
Message	RECTRC and NAVLNE as part of a C_AGGR do not have consistent values of ORIENT.				
Solution	Amend values of ORIENT to agree.		Conformity	10.1.2	
Test Case No. 1	NAVLNE and RECTRC objects with differing ORIENT values.				
Location	32°24'02.60"S 60°48'27.83"E	S57 Encoding	NAVLNE (L) RECTRC (L)	CATNAV=3 ORIENT=335 CATTRK=1 ORIENT=336 TRAFIC=3	
Screen Capture					
Expected Test Results	T1683: An error "RECTRC and NAVLNE as part of a C_AGGR do not have consistent values of ORIENT" must be triggered.				
Secondary Errors	T0050: An additional error "RECTREC where CATTRK=1 or NAVLNE is not a straight line" must be triggered.				

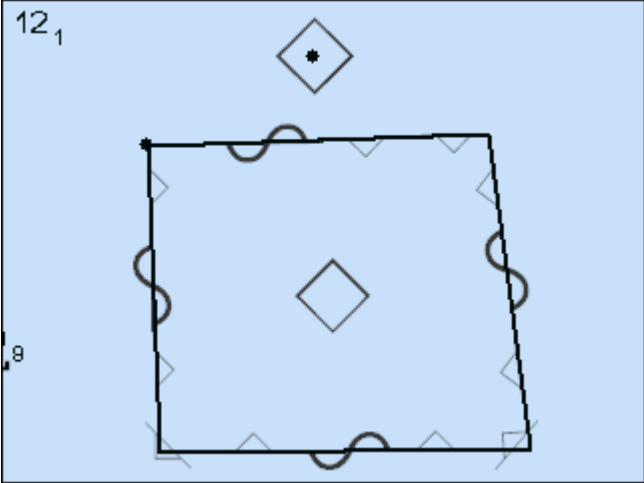
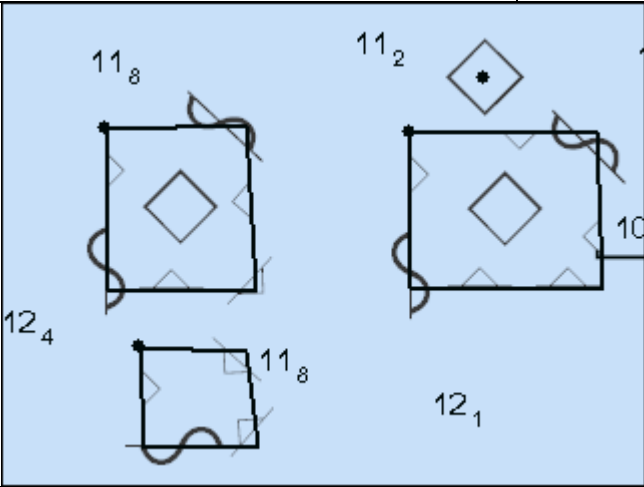
	T1787: 2 additional errors “ORIENT values for NAVLNE and RECTRC objects sharing an edge are not equal or reciprocal” must be triggered.				
Dataset Name	AA500006	S-58 test No.	T1684	Type	E
S-58 Description	For each group of objects forming a measured distance where the beacons and transit lines are not aggregated into a C_AGGR collection object AND the C_AGGR collection objects are not aggregated into another C_AGGR object including the track to be followed.				
Message	Measured distance not grouped using C_AGGR collection objects.				
Solution	Encode C_AGGR objects and relate as appropriate.		Conformity	10.1.3	
Test Case No. 1	NAVLNE and BCNSPP objects with CATNAV and CATSPM attribute values encoded.				
Location	32°23'55.15"S 60°48'03.02"E	S57 Encoding	NAVLNE (L) BCNSPP (P)	CATNAV=2 ORIENT=unknown INFORM=Measured distance=145 metres CATSPM=17	
Screen Capture					
Expected Test Results	T1684: 3 errors “Measured distance not grouped using C_AGGR collection objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1685	Type	E
S-58 Description	For each object of type TSSBND is not COINCIDENT with the outer limit of a TSSRON, TSSLPT or TSSZNE.				
Message	TSSBND not on the outer limit of an appropriate TSS object.				
Solution	Amend TSSBND or other TSS objects so that it forms the outer limit.		Conformity	10.2.1.2	
Test Case No. 1	TSSBND (L) without an outer limit for a traffic lane/separation scheme roundabout.				
Location	32°24'22.56"S 60°48'39.33"E	S57 Encoding	TSSBND (L)		

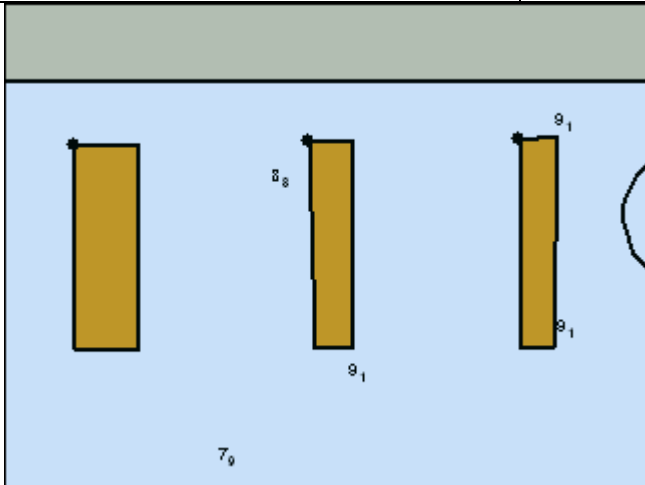
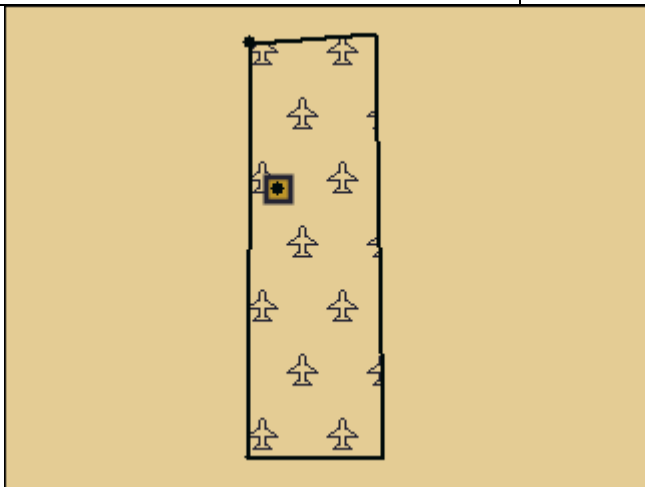
Screen Capture					
Expected Test Results	T1685: An error “TSSBND not on the outer limit of an appropriate TSS object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1686	Type	E
S-58 Description	For each TSELNE object which is not COINCIDENT with two TSSLPT objects OR one TSSLPT object and one ISTZNE object.				
Message	TSSLNE does not separate TSSLPT objects or TSSPLT and ISTZNE objects.				
Solution	Amend TSELNE to ensure it separates appropriate objects.		Conformity	10.2.1.3	
Test Case No. 1	TSELNE (L) without traffic lanes or inshore traffic zone.				
Location	32°24'22.36"S 60°48'29.28"E	S57 Encoding	TSELNE (L)		
Screen Capture					
Expected Test Results	T1686: An error “TSSLNE does not separate TSSLPT objects or TSSPLT and ISTZNE objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1687	Type	E
S-58 Description	For each TSEZNE object which is not COINCIDENT with two TSSLPT objects OR one TSSLPT object and one ISTZNE object OR COINCIDENT with a TSSRON object.				

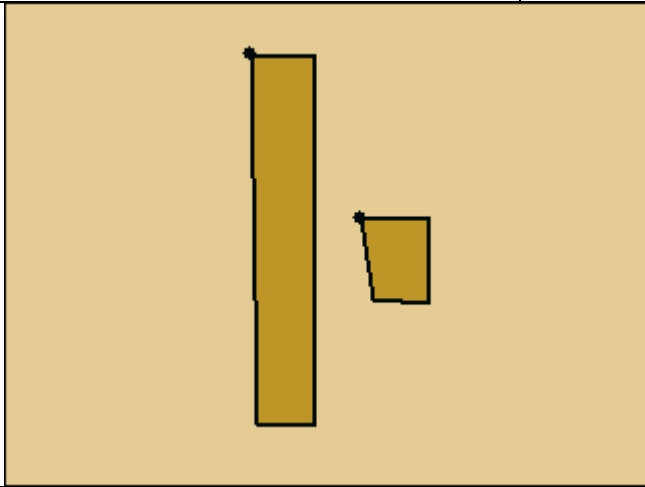
Message	TSEZNE does not separate appropriate TSS objects.				
Solution	Amend TSSZNE to separate appropriate objects.			Conformity	10.2.1.4
Test Case No. 1	TSEZNE (A) which does not separate two traffic lanes, TSELNE, ISTZNE and TSSRON.				
Location	32°24'15.46"S 60°47'45.97"E	S57 Encoding	TSEZNE (A)		
Screen Capture					
Expected Test Results	T1687: A warning “TSEZNE does not separate appropriate TSS objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1688	Type	E
S-58 Description	For each TSSCRS object which does not touch greater than 3 TSSLPT or TWRTPT objects.				
Message	TSSCRS object does not encode a crossing of 4 or more lanes.				
Solution	Encode all lane parts or use another object.			Conformity	10.2.1.5
Test Case No. 1	TSSCRS (A) without traffic lanes.				
Location	32°24'10.26"S 60°47'15.08"E	S57 Encoding	TSSCRS (A)		
Screen Capture					
Expected Test Results	T1688: An error “TSSCRS object does not encode a crossing of 4 or more lanes” must be triggered.				
Secondary Errors	None				


Dataset Name	AA500006	S-58 test No.	T0543	Type	E
S-58 Description	If any TS_TSP attribute value does not conform to the correct structure, (i.e. values separated by commas).				
Message	TS_TSP value not formatted correctly.				
Solution	Correct formatting of TS_TSP value.	Conformity	Appendix A Ch.2 (code 159).		
Test Case No. 1	TS_PAD (P) with attribute TS_TSP improperly encoded.				
Location	32°24'57.45"S 60°47'05.16"E	S57 Encoding	TS_PAD (P)	TS_TSP=63230, Darwin,HW,12 4,2.2,128,2.1,1 25,2.9,116,2.8, 110,2.0,095,0. 6,020,0.2,320, 1.9,315,2.1,30 0,2.8,268,2.6,2 00,2.4,1652.5	
Screen Capture					
Expected Test Results	T0543: An error “TS_TSP value not formatted correctly” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1559	Type	E
S-58 Description	For each T_NHMN object which is not associated (using the C_ASSO collection object with a T_TIMS or T_HMON object).				
Message	T_NHMN which is not associated with an appropriate object.				
Solution	Associate T_NHMN with a T_TIMS or T_HMON object.	Conformity	3.2.3		
Test Case No. 1	T_NHMN (A, P) without an associated collection object with T_TIMS or T_HMON.				
Location	32°25'29.81"S 60°48'19.92"E	S57 Encoding	T_NHMN (A, P)		


Screen Capture					
Expected Test Results	T1559: 2 errors “T_NHMN which is not associated with an appropriate object” must be triggered.				
Secondary Errors	None				
Test Case No. 2	T_NHMN (A, P) associated with a collection object. T_NHMN (A) associated with a collection object with T_TIMSS (A). T_NHMN (P) associated with a collection object with T_HMON (A).				
Location	32°25'30.28"S 60°48'32.33"E	S57 Encoding	T_NHMN (A, P) T_TIMS (P) T_HMON (A)		
Screen Capture					
Expected Test Results	T1559: 2 errors “object must be associated with an object ‘C_AGGR’ using 'c_asso'” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1562	Type	E
S-58 Description	For each TS_PNH object which is not associated with (using the collection object C_ASSO) a TS_TIS OR TS_PRH object.				
Message	TS_PNH not associated to a TS_TIS or TS_PRH object.				
Solution	Associate TS_PNH to a TS_TIS or TS_PRH object using C_ASSO.		Conformity	3.3.4	
Test Case No. 1	TS_PNH (A, P) without an associated collection object with TS_TIS or TS_PRH.				

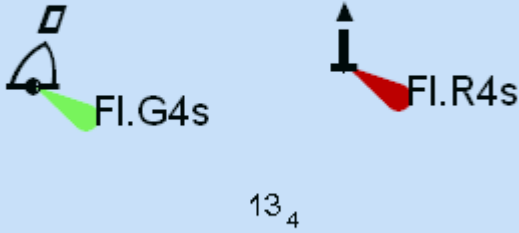
Location	32°25'27.91"S 60°47'53.54"E	S57 Encoding	TS_PNH (A, P)	T_MTOD=unknown T_THDF=1	
Screen Capture					
Expected Test Results	T1562: 2 errors “TS_PNH not associated to a TS_TIS or TS_PRH object” must be triggered.				
Secondary Errors	None				
Test Case No. 2	TS_PNH (A, P) associated with a collection object. TS_PNH (A) associated with a collection object with TS_TIS (A). TS_PNH (P) associated with a collection object with TS_PRH (A).				
Location	32°25'32.43"S 60°47'35.81"E	S57 Encoding	TS_PNH (P) TS_TIS (P) TS_PRH (P)		
Screen Capture					
Expected Test Results	T1562: 2 errors “TS_PNH not associated to a TS_TIS or TS_PRH object” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1605	Type	E
S-58 Description	For each ICEARE object which is not WITHIN a LNDARE or UNSARE or DEPAARE object of type area.				
Message	ICEARE not covered by appropriate TG1 objects.				
Solution	Amend objects to ensure TG1 objects cover.		Conformity	4.7.10	

Test Case No. 1	ICEARE (A) overlapping PONTON (A), HULKES (A) or FLODOC (A).				
Location	32°23'54.97"S 60°46'58.06"E	S57 Encoding	ICEARE (A) PONTON (A) HULKES (A) FLODOC (A)	CATICE=5	
Screen Capture					
Expected Test Results	T1605: 3 errors “ICEARE not covered by appropriate TG1 objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500006	S-58 test No.	T1625	Type	W
S-58 Description	For each AIRARE or RUNWAY object encoded using a collection object which is not C_ASSO.				
Message	RUNWAY or AIRARE associated using C_AGGR.				
Solution	Encode association using C_ASSO not C_AGGR.		Conformity	4.8.12	
Test Case No. 1	AIRARE (A) & BUISGL (P) encoded using collection object C_AGGR.				
Location	32°23'51.08"S 60°48'22.79"E	S57 Encoding	AIRARE (A) BUISGL (P)		
Screen Capture					
Expected Test Results	T1625: A warning “RUNWAY or AIRARE associated using C_AGGR” must be triggered.				
Secondary Errors	None				
Test Case No. 2	RUNWAY (A) & BUISGL (A) objects encoded using collection object C_AGGR.				

Location	32°23'51.55"S 60°48'27.99"E	S57 Encoding	RUNWAY(A) BUISGL (A)	
Screen Capture				
Expected Test Results	T1625: A warning “RUNWAY or AIRARE associated using C_AGGR” must be triggered.			
Secondary Errors	None			
Dataset Name	AA500006	S-58 test No.	T1729	Type E
S-58 Description	For each geo object forming part of a BCNXX or BOYXX object AND MARSYS is not (9) or (10) where the attributes for structure, topmark and lights do not conform to the value of MARSYS on the geo object or the M_NSYS object it is WITHIN.			
Message	Component of an aid to navigation does not conform to the IALA system defined on the object or in M_NSYS.			
Solution	Ensure attributes conform to the IALA system encoded in MARSYS.		Conformity	12.2 and 12.4.1.1
Test Case No. 1	BOYLAT, BCNLAT & LIGHTS encoded using values opposite to the indicated IALA system.			
Location	32°25'28.02"S 60°46'39.96"E	S57 Encoding	BCNLAT (P) TOPMAR (P) LIGHTS (P) BOYLAT (P) TOPMAR (P) LIGHTS (P)	BCNSHP=1 CATLAM=2 COLOUR=4 TOPSHP=1 COLOUR=4 LITCHR=2 COLOUR=4 SIGGRP=(1) SIGPER=4 BOYSHP=1 CATLAM=1 COLOUR=3 TOPSHP=5 COLOUR=3 LITCHR=2 COLOUR=3 SIGGRP=(1) SIGPER=4

<p>Screen Capture</p>				
<p>Expected Test Results</p>	<p>T1729: 6 Errors "Component of an aid to navigation does not conform to the IALA system defined on the object or in M_NSYS" must be triggered.</p>			
<p>Secondary Errors</p>	<p>None</p>			
<p>Test Case No. 2</p>	<p>BOYLAT, BCNLAT & LIGHTS encoded using values opposite to the indicated IALA system and where MARSYS attribute values are encoded.</p>			
<p>Location</p>	<p>32°25'32.17"S 60°46'57.56"E</p>	<p>S57 Encoding</p>	<p>BCNLAT (P) TOPMAR (P) LIGHTS (P) BOYLAT (P) TOPMAR (P) LIGHTS (P)</p>	<p>BCNSHP=1 CATLAM=2 COLOUR=3 MARSYS=9 TOPSHP=1 COLOUR=3 LITCHR=2 COLOUR=3 SIGGRP=(1) SIGPER=4 BOYSHP=1 CATLAM=1 COLOUR=4 MARSYS=9 TOPSHP=5 COLOUR=4 LITCHR=2 COLOUR=4 SIGGRP=(1) SIGPER=4</p>

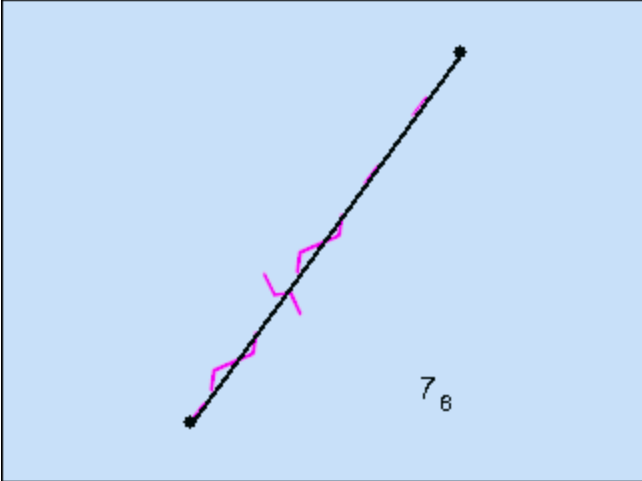
<p>Screen Capture</p>				
<p>Expected Test Results</p>	<p>T1729: 6 Errors "Component of an aid to navigation does not conform to the IALA system defined on the object or in M_NSYS" must not be triggered.</p>			
<p>Secondary Errors</p>	<p>None</p>			
<p>Test Case No. 3</p>	<p>BOYLAT, BCNLAT & LIGHTS encoded using values opposite to the indicated IALA system and where MARSYS attribute values are encoded.</p>			
<p>Location</p>	<p>32°25'23.65"S 60°46'57.61"E</p>	<p>S57 Encoding</p>	<p>BCNLAT (P)</p> <p>TOPMAR (P)</p> <p>LIGHTS (P)</p> <p>BOYLAT (P)</p> <p>TOPMAR (P)</p> <p>LIGHTS (P)</p>	<p>BCNSHP=1 CATLAM=2 COLOUR=3 MARSYS=10 TOPSHP=1 COLOUR=3 LITCHR=2 COLOUR=3 SIGGRP=(1) SIGPER=4 BOYSHP=1 CATLAM=1 COLOUR=4 MARSYS=10 TOPSHP=5 COLOUR=4 LITCHR=2 COLOUR=4 SIGGRP=(1) SIGPER=4</p>

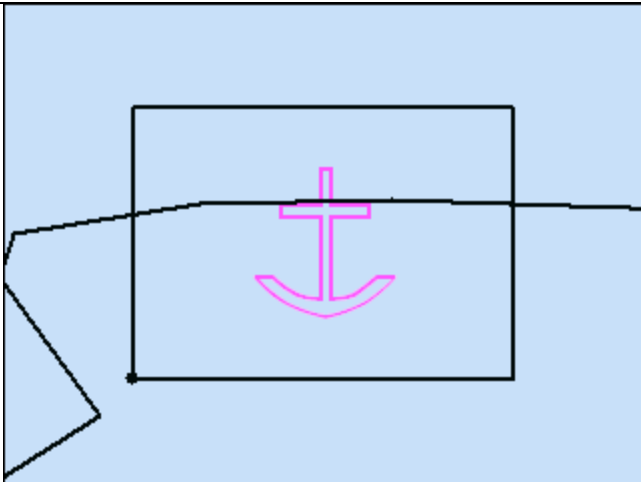
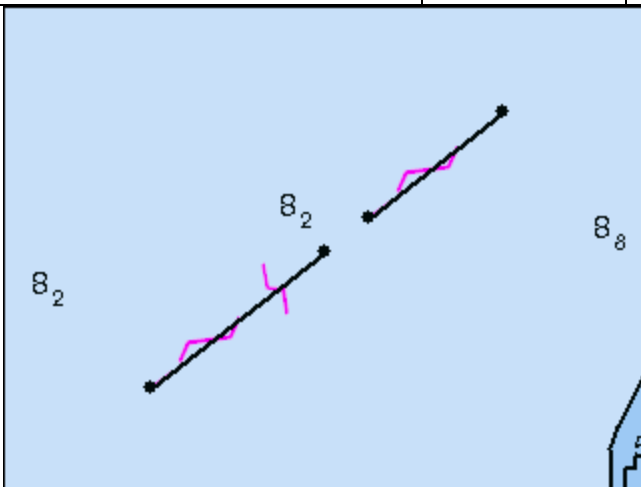
<p>Screen Capture</p>		
<p>Expected Test Results</p>	<p>T1729: 6 Errors "Component of an aid to navigation does not conform to the IALA system defined on the object or in M_NSYS" must not be triggered.</p>	
<p>Secondary Errors</p>	<p>None</p>	

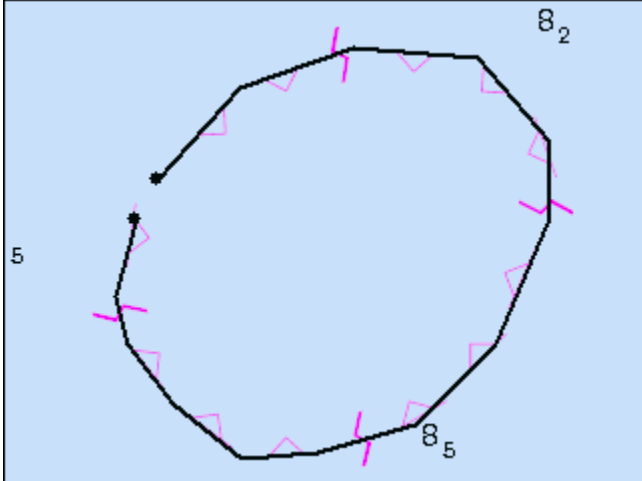
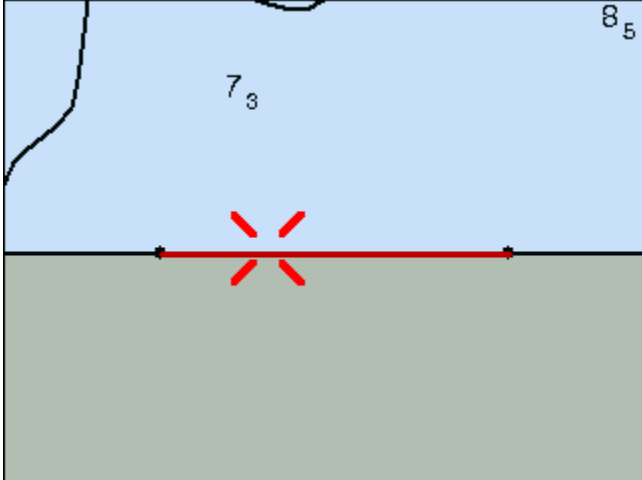
2.7. Test Dataset: AA500007

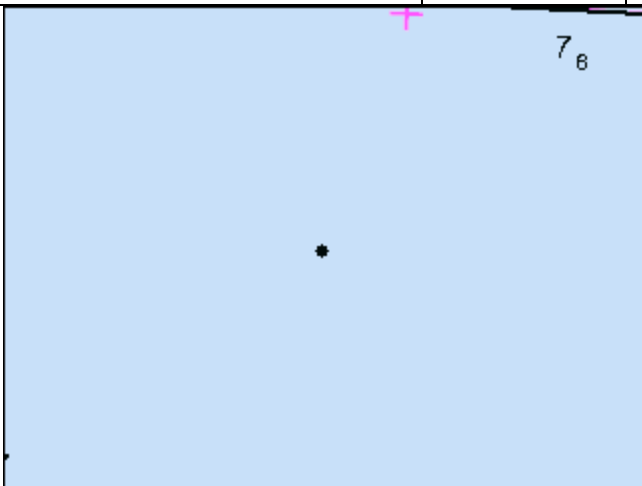
List of S-58 Recommended ENC Validation Checks covered in this section:

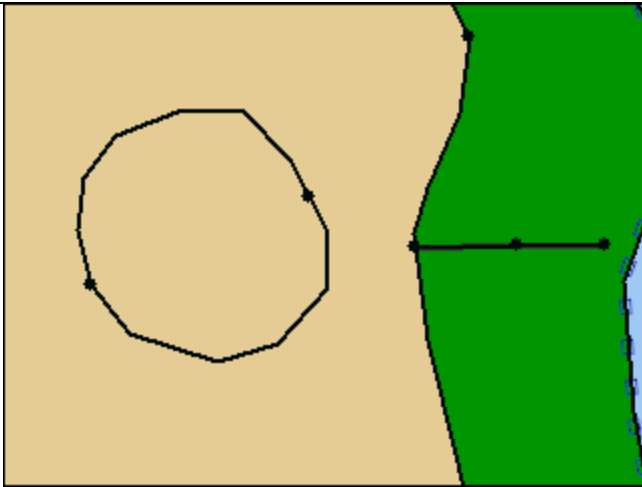
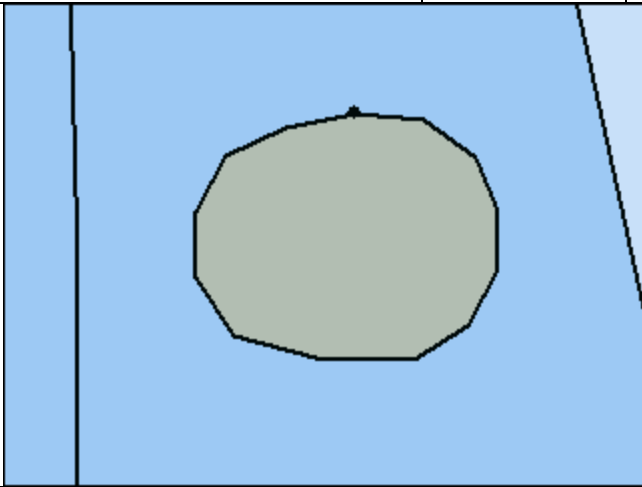
S-58 Test	Description		
2	For all VE edges which do not have a beginning or end node.		
11	For each edge where USAG = 3 [exterior boundary truncated by the data limit] not referencing an M_COVR object.		
13a	For each feature of type line which references multiple edges where the vector records are not referenced sequentially.		
15	For each area outer or inner boundary which is not closed (i.e. the first and last edges bounding the area do not meet at a common connected node).		
19	For each edge which is COINCIDENT with the data limit borders (i.e. limits of M_COVR with CATCOV = 1 [coverage available]) where USAG does not equal 3 [Exterior boundary truncated by the data limit].		
21	For each vector record pointer (VRPT) fields which are not pointed to by an edge vector record.		
40	For any pair of line objects where class and attribute values are identical AND all referenced edges have the same spatial attribute values AND which have one or two common connected nodes which is (are) a beginning node or an end node of each linear feature AND each common connected node is not shared by more than two objects which are not chained together.		
42	For VE edges which are referenced by Group 1 objects and are not linked to objects M_COVR with CATCOV = 1 [coverage available] which do not appear twice with different ORNT values or are not linked to objects M_COVR with CATCOV = 1 [coverage available].		
71a	For each object of type area where all edges are have not USAG = 3 [exterior boundary truncated by the data limit] has AND all edges are masked (i.e. USAG = 3 or MASK = 1 [mask]).		
71b	For each object of type line which has any edges masked (i.e. MASK = 1 [mask]).		
1005	For all attributes TXTDSC,NTXTDS,PICREP which are 'not Null' and referenced files do not exist or their names do not conform to the ENC Product Specification.		
1006	If a catalogue file does not exist.		
554	For each edge referenced by only one M_COVR object with CATCOV = 1 [coverage available], that is also shared by more than one Group 1 object.		
566	Check that any NEWOBJ object has attributes CLSDEF, CLSNAM and SYMINS populated with exactly one of the following combinations:		
	CLSDEF	CLSNAM	SYMINS
	A Virtual object which indicates navigable water lies northwards	Virtual AtoN, North Cardinal	SY(BRTHNO01);SY(BCNCAR01);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object which indicates navigable water lies eastwards	Virtual AtoN, East Cardinal	SY(BRTHNO01);SY(BCNCAR02);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object which indicates navigable water lies southwards	Virtual AtoN, South Cardinal	SY(BRTHNO01);SY(BCNCAR03);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object which indicates navigable water lies westwards	Virtual AtoN, West Cardinal	SY(BRTHNO01);SY(BCNCAR04);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking the port side of a channel	Virtual AtoN, Port Lateral	SY(BRTHNO01);SY(BOYLAT24);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking the starboard side of a channel	Virtual AtoN, Starboard Lateral	SY(BRTHNO01);SY(BOYLAT13);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking the port side of a channel	Virtual AtoN, Port Lateral	SY(BRTHNO01);SY(BOYLAT23);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking the starboard side of a channel	Virtual AtoN, Starboard Lateral	SY(BRTHNO01);SY(BOYLAT14);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking an isolated danger	Virtual AtoN, Isolated Danger	SY(BRTHNO01);SY(BCNISD21);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking safe water	Virtual AtoN, Safe Water	SY(BRTHNO01);SY(BOYSAW12);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object used to mark an area or feature referred to in nautical documents	Virtual AtoN, Special Purpose	SY(BRTHNO01);SY(BOYSPP11);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
	A Virtual object marking a wreck	Virtual AtoN, Wreck Marking	SY(BRTHNO01);SY(BOYSPP11);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)
25c	For each edge where the beginning and end nodes are not referenced using the vector record pointer.		
28	If the count of records in the DSSI field does not equal the total number of records.		

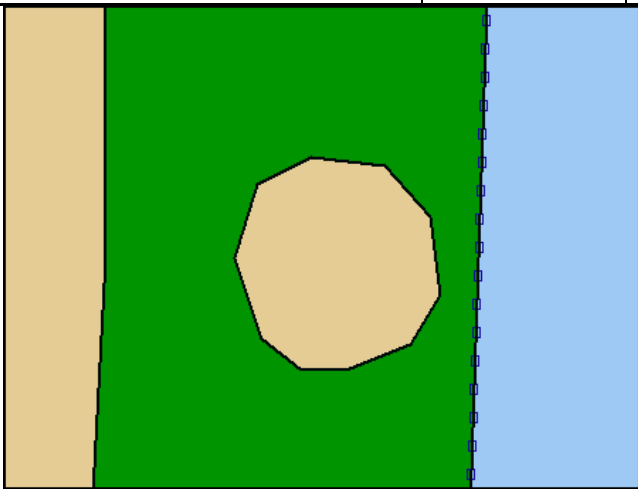
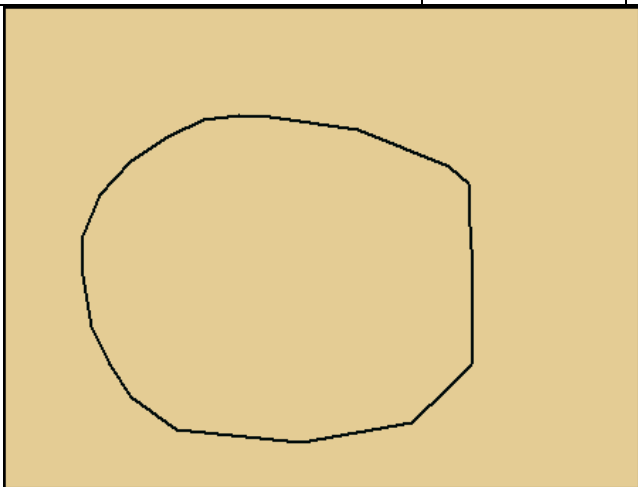
Dataset Name	AA500007	S-58 test No.	T0002	Type	C
S-58 Description	For all VE edges which do not have a beginning or end node.				
Message	VE edge missing beginning or end node.				
Solution	Add nodes as required.	Conformity	Part 2 (2.2.1.2)		
Test Case No. 1	CBLSUB (L) without connected nodes.				
Location	32°24'54.03"S 60°44'54.20"E	S57 Encoding	CBLSUB (L)		
Screen Capture					
Expected Test Results	T0002: An error “VE edge missing beginning or end node” must be triggered.				
Secondary Errors	T0084a: An additional error “isolated node marked as connected” must be triggered. T0012: An additional error “Missing FSPT [Feature Record to Spatial Record pointer field]” must be triggered. T0021: An additional error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered.				
Dataset Name	AA500007	S-58 test No	T0011	Type	E
S-58 Description	For each edge where USAG = 3 [exterior boundary truncated by the data limit] not referencing an M_COVR object.				
Message	Edge with USAG = 3 [exterior boundary truncated by the data limit] does not reference an M_COVR object.				
Solution	Set USAG to 1 or 2.	Conformity	Part 3 (4.7.3.3)		
Test Case No. 1	ACHARE (A) with truncated edges.				
Location	32°23'51.34"S 60°43'36.08"E	S57 Encoding	ACHARE (A)		

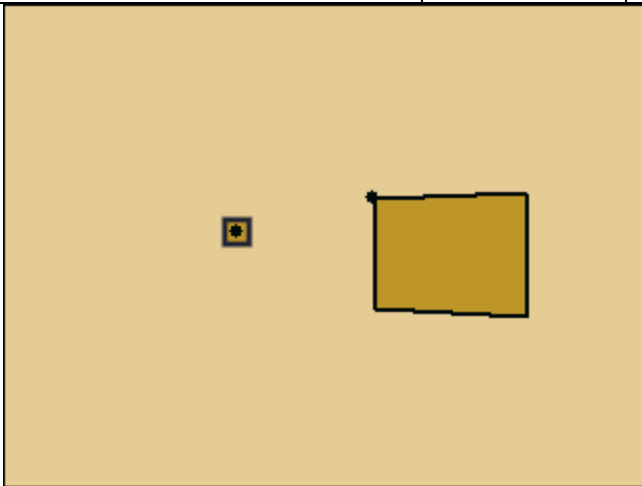
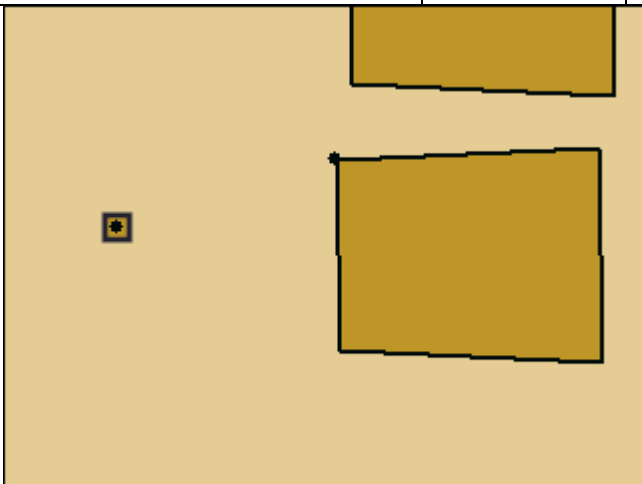
Screen Capture					
Expected Test Results	T0011: An error "Edge with USAG = 3 [exterior boundary truncated by the data limit] does not reference an M_COVR object" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0013a	Type	C
S-58 Description	For each feature of type line which references multiple edges where the vector records are not referenced sequentially.				
Message	Edges are not referenced sequentially.				
Solution	Amend records to reference edges sequentially.	Conformity	Part 3 (4.7.2)		
Test Case No. 1	CBLSUB (L) as a single object with two edges.				
Location	32°24'39.15"S 60°45'00.11"E	S57 Encoding	CBLSUB (L)		
Screen Capture					
Expected Test Results	T0013a: An error "Edges are not referenced sequentially" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0015	Type	C
S-58 Description	For each area outer or inner boundary which is not closed (i.e. the first and last edges bounding the area do not meet at a common connected node).				
Message	First and last edge of an area boundary do not meet at a common connected node.				

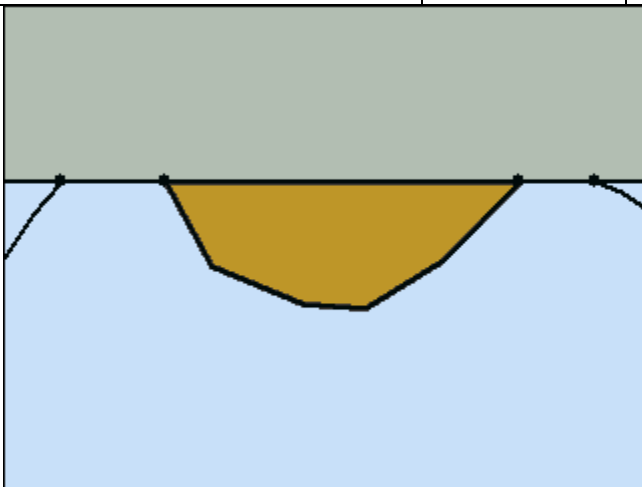
Solution	Amend edges bounding the area to meet at a common connected node.		Conformity	Part 3 (4.7.3.1)	
Test Case No. 1	CBLSUB bounding an area without meeting at a common connected node.				
Location	32°24'50.17"S 60°44'20.17"E	S57 Encoding	CBLARE (A)		
Screen Capture					
Expected Test Results	T0015: An error “First and last edge of an area boundary do not meet at a common connected node” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0019	Type	E
S-58 Description	For each edge which is COINCIDENT with the data limit borders (i.e. limits of M_COVR with CATCOV = 1 [coverage available]) where USAG does not equal 3 [Exterior boundary truncated by the data limit].				
Message	Edge coincides with the edge of data and USAG does not equal 3 {Exterior boundary truncated by the data limit}.				
Solution	Amend edge to USAG = 3 [Exterior boundary truncated by the data limit].		Conformity	Part 3 (4.7.3.3).	
Test Case No. 1	M_COVR exterior boundary is truncated.				
Location	32°25'40.43"S 60°44'02.86"E	S57 Encoding	M_COVR (A)		
Screen Capture					
Expected Test Results	T0019: An error “Amend edge to USAG = 3 [Exterior boundary truncated by the data limit]” must be triggered.				

Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0021	Type	C
S-58 Description	For each vector record pointer (VRPT) fields which are not pointed to by an edge vector record.				
Message	Vector record pointer field (VRPT) not referenced by an edge vector record.				
Solution	Ensure Vector record pointer field (VRPT) is referenced by an edge vector record or delete.	Conformity	Appendix B.1 (3.3), Part 3 (5.1.1) and Supplement No2 Ch.4 (3.3.1)		
Test Case No. 1	Spatial node with null class.				
Location	32°24'54.47"S 60°43'47.10"E	S57 Encoding	VE		
Screen Capture					
Expected Test Results	T0021: An error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0040	Type	W
S-58 Description	For any pair of line objects where class and attribute values are identical AND all referenced edges have the same spatial attribute values AND which have one or two common connected nodes which is (are) a beginning node or an end node of each linear feature AND each common connected node is not shared by more than two objects which are not chained together.				
Message	Linear objects with the same class, attribute values and spatial attribute values which are connected are not chained together.				
Solution	Chain linear objects together.	Conformity	Logical consistency		
Test Case No. 1	SLCONS (L) encoded with different object class and attributes.				
Location	32°25'38.79"S 60°46'22.09"E	S57 Encoding	SLCONS (L) LNDELV (L)	CATSLC=4 WATLEV=2 QUAPOS=2 and 4	

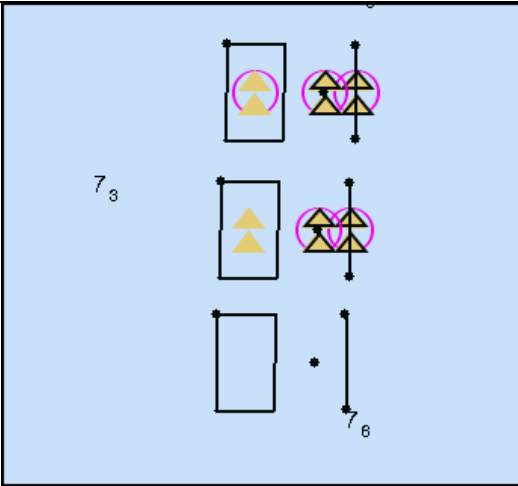
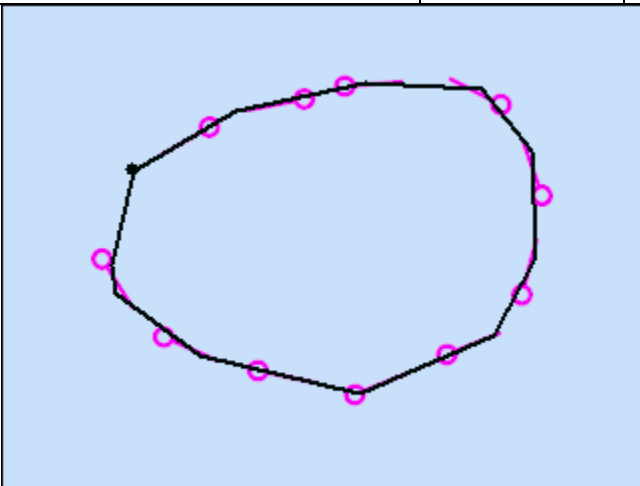
Screen Capture					
Expected Test Results	T0040: 4 warnings “Linear objects with the same class, attribute values and spatial attribute values which are connected are not chained together” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0042	Type	C
S-58 Description	For VE edges which are referenced by Group 1 objects and are not linked to objects M_COVR with CATCOV = 1 [coverage available] which do not appear twice with different ORNT values.				
Message	GROUP 1 is not correct, a hole or an overlap exists.				
Solution	Correct GROUP 1, to remove hole or overlap.		Conformity	Logical consistency	
Test Case No. 1	Edge referenced by only one Group 1 feature.				
Location	32°25'39.24"S 60°46'25.66"E	S57 Encoding			
Screen Capture					
Expected Test Results	T0042: An error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0071a	Type	W
S-58 Description	For each object of type area where all edges have not USAG = 3 [exterior boundary truncated by the data limit] AND all edges are masked (i.e. USAG = 3 or MASK = 1 [mask]).				
Message	Area object has all of its edges masked and is not the edge of the data coverage.				

Solution	Remove masking.		Conformity	Logical consistency	
Test Case No. 1	LNDARE (A) with a masked edge.				
Location	32°25'40.00"S 60°46'22.78"E	S57 Encoding	LNDARE(A)		
Screen Capture					
Expected Test Results	T0071: A warning “Area object has all of its edges masked and is not the edge of the data coverage” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0071b	Type	E
S-58 Description	For each object of type line which has any edges masked (i.e. MASK = 1 [mask]).				
Message	Line object with masked edges.				
Solution	Remove masking from line object.		Conformity	Logical consistency	
Test Case No. 1	LNDELV (L) with a masked edge.				
Location	32°25'40.18"S 60°46'21.26"E	S57 Encoding	LNDELV (L)		
Screen Capture					
Expected Test Results	T0071: An error “Line object with masked edges” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T1005	Type	C

S-58 Description	For all attributes TXTDSC, NTXTDS, PICREP which are ‘not Null’ and referenced files do not exist or their names do not conform to the ENC Product Specification.			
Message	Referenced files are missing or their names are non-conformant.			
Solution	Ensure referenced files exist and are named correctly.	Conformity	5.4.1 and 5.6.4	
Test Case No. 1	BUIISGL (A, P).			
Location	32°25'34.41"S 60°44'55.10"E	S57 Encoding	BUIISGL (A, P)	TXTDSC=US500527.TXT NTXTDS=US500527.TXT PICREP = US500527.TIF
Screen Capture				
Expected Test Results	T1005: 6 errors “Referenced files are missing or their names are non-conformant” must be triggered.			
Secondary Errors	None			
Test Case No. 2	BUIISGL (A, P).			
Location	32°25'35.57"S 60°44'55.21"E	S57 Encoding	BUIISGL (A, P)	TXTDSC=GB50527.TXT NTXTDS=GB50527.TXT PICREP = GB50527.TIF
Screen Capture				
Expected Test Results	T1005: 6 errors “Referenced files are missing or their names are non-conformant” must be			

	triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T1006	Type	C
S-58 Description	If a catalogue file does not exist.				
Message	No catalogue file exists.				
Solution	Create a catalogue file.	Conformity	5.4.1		
Test Case No. 1	Catalogue file deleted after creating ENCROOT.				
Location	N/R	S57 Encoding	N/R		
Screen Capture					
Expected Test Results	T1006: An error “No catalogue file exists” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500007	S-58 test No.	T0554	Type	C
S-58 Description	For each edge referenced by only one M_COVR object with CATCOV = 1 [coverage available], that is also shared by more than one Group 1 object				
Message	Edge of M_COVR coverage available referenced by more than one Group 1 object.				
Solution	Ensure edges on the edge of data coverage only reference one Group 1 object.	Conformity	3.10.1		
Test Case No. 1	FLODOC (A) overlapping DEPARE.				
Location	32°23'48.90"S 60°44'04.92"E	S57 Encoding	FLODOC (A) DEPARE (A)		
Screen Capture					
Expected Test Results	T0554: An error “Edge of M_COVR coverage available referenced by more than one Group 1 object” must be triggered.				
Secondary Errors	T0519b: 2 additional errors “Check Group 1 coverage and consistency Skin of the earth (TG1) objects overlap” must be triggered. T0548: An additional error "Cell not entirely covered by M_COVR objects" must be triggered. T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered for the objects created must be triggered. T0019: An additional error “Edge coincides with the edge of data and USAG does not equal 3 {Exterior boundary truncated by the data limit}” must be triggered.				

Dataset Name	AA500007	S-58 test No.	T0566	Type	E
S-58 Description	Check that any NEWOBJ object has attributes CLSDEF, CLSNAM and SYMINS populated with exactly one of the following combinations:				
	CLSDEF	CLSNAM	SYMINS		
	A Virtual object which indicates navigable water lies northwards	Virtual AtoN, North Cardinal	SY(BRTHNO01);SY(BCNCAR01);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object which indicates navigable water lies eastwards	Virtual AtoN, East Cardinal	SY(BRTHNO01);SY(BCNCAR02);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object which indicates navigable water lies southwards	Virtual AtoN, South Cardinal	SY(BRTHNO01);SY(BCNCAR03);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object which indicates navigable water lies westwards	Virtual AtoN, West Cardinal	SY(BRTHNO01);SY(BCNCAR04);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking the port side of a channel	Virtual AtoN, Port Lateral	SY(BRTHNO01);SY(BOYLAT24);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking the starboard side of a channel	Virtual AtoN, Starboard Lateral	SY(BRTHNO01);SY(BOYLAT13);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking the port side of a channel	Virtual AtoN, Port Lateral	SY(BRTHNO01);SY(BOYLAT23);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking the starboard side of a channel	Virtual AtoN, Starboard Lateral	SY(BRTHNO01);SY(BOYLAT14);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking an isolated danger	Virtual AtoN, Isolated Danger	SY(BRTHNO01);SY(BCNISD21);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking safe water	Virtual AtoN, Safe Water	SY(BRTHNO01);SY(BOYSAW12);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object used to mark an area or feature referred to in nautical documents	Virtual AtoN, Special Purpose	SY(BRTHNO01);SY(BOYSPP11);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
	A Virtual object marking a wreck	Virtual AtoN, Wreck Marking	SY(BRTHNO01);SY(BOYSPP11);TX('V-AIS',3,2,2,'15110',2,0,CHMGD,11)		
Message	Invalid use of New Object.				
Solution	Amend to reflect TSMAD guidance.		Conformity	EB 54	
Test Case No. 1	New Object (A, L, P).				
Location	32°24'20.80"S 60°44'36.58"E	S57 Encoding	NEWOBJ (A, L, P)		

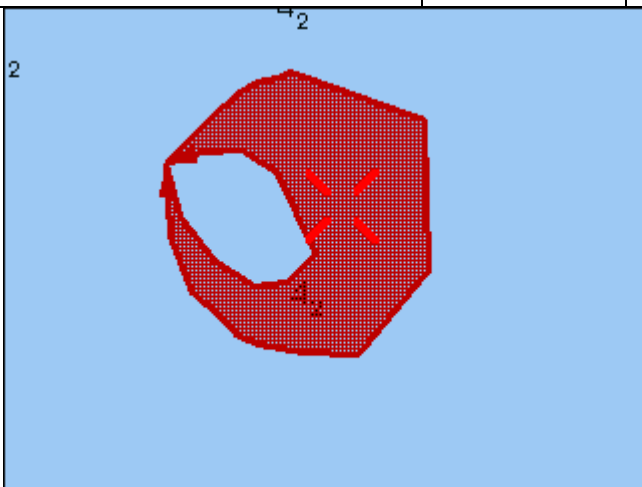
Screen Capture					
Expected Test Results	T0566: 9 errors “Check that there is no NEWOBJ object in the data that has not been approved by an IHO ENC Encoding Bulletin” must be triggered.				
Secondary Errors	T0562: 9 additional errors “INFORM must commence with the value 'New object'” must be triggered.				
Dataset Name	AA500007	S-58 test No.	T0025c	Type	C
S-58 Description	For each edge where the beginning and end nodes are not referenced using the vector record pointer.				
Message	Beginning or end nodes not referenced by the vector record pointer.				
Solution	Amend edge to ensure beginning and end nodes are referenced		Conformity	Part 3 (5.1.4.4)	
Test Case No. 1	PIPSOL (L).				
Location	32°23'53.31"S 60°46'20.89"E	S57 Encoding	PIPSOL (L)		
Screen Capture					
Expected Test Results	T0025c: An error “Beginning or end nodes not referenced by the vector record pointer” must be triggered.				
Secondary Errors	T0012: An additional error "Missing FSPT [Feature Record to Spatial Record pointer field]" must be triggered.				
Dataset Name	AA500007	S-58 test No.	T0028	Type	E

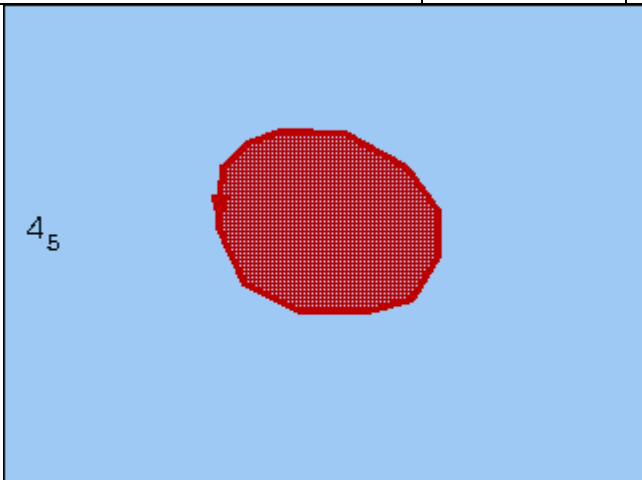
S-58 Description	If the count of records in the DSSI field does not equal the total number of records.			
Message	DSSI field record count incorrect.			
Solution	Correct the DSSI field record count.	Conformity	Part 3 (7.3.1.2)	
Test Case No. 1	The count of records is not equal to the total number of physical records in the cell.			
Location	N/A	S57 Encoding	N/A	
Screen Capture				
Expected Test Results	T0028: An error “DSSI field record count incorrect” must be triggered.			
Secondary Errors	None			

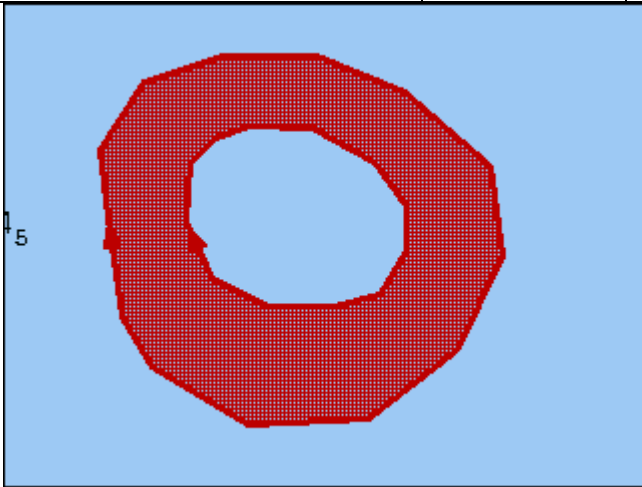
2.8. Test Dataset: AA500008


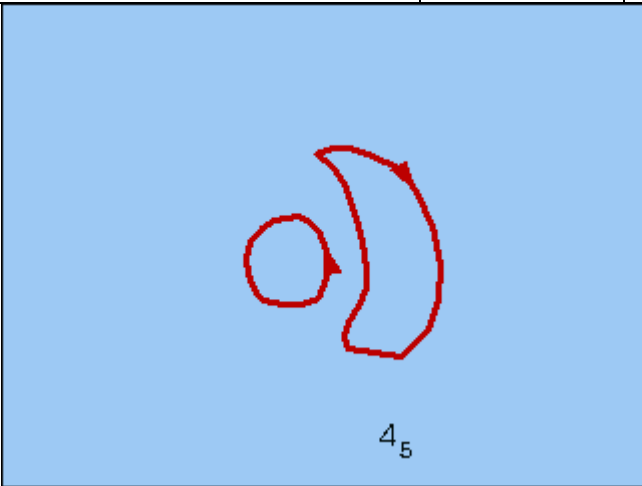
List of S-58 Recommended ENC Validation Checks covered in this section:

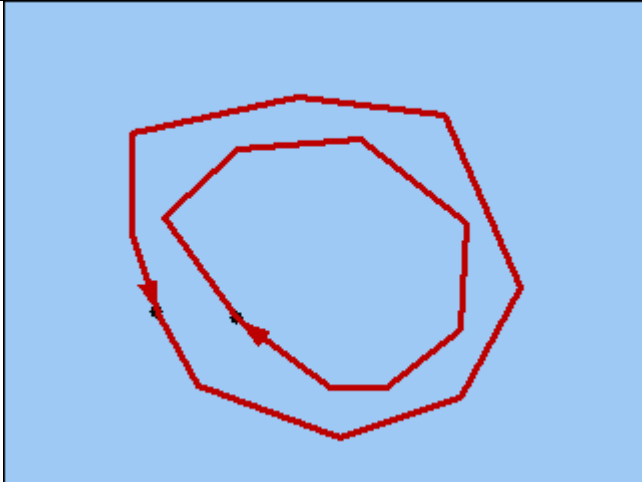
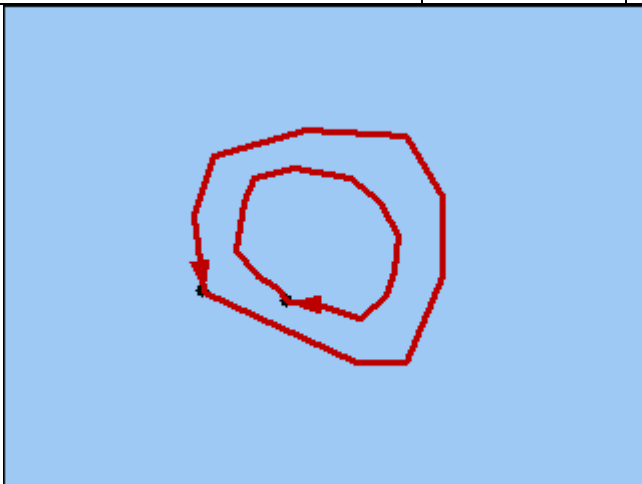
S-58 Test	Description
14	For each area object where outer or inner boundaries share more than one node.
16	For each area outer boundary which is not encoded clockwise.
17	For each area inner boundary which is not encoded counter-clockwise.
20	For each object where a geometric primitive is not one of those permitted.
80a	For each area object where an internal boundary is WITHIN an internal boundary.
80b	For each area object where an internal boundary is not WITHIN an external boundary.
80c	For each area object where an external boundary is WITHIN an internal boundary.

Dataset Name	AA500008	S-58 test No.	T0014	Type	C
S-58 Description	For each area object where outer or inner boundaries share more than one node.				
Message	Outer or inner boundaries share more than one node.				
Solution	Amend boundaries so that they share at most one node.	Conformity	Part 3 (4.7.3).		
Test Case No. 1	Two SEAARE (A) objects sharing a single node.				
Location	32°24'43.18"S 60°42'06.52"E	S57 Encoding	SEAARE (A)		
Screen Capture					
Expected Test Results	T0014: An error “Outer or inner boundaries share more than one node” must be triggered.				
Secondary Errors	None				

Dataset Name	AA500008	S-58 test No.	T0016	Type	C
S-58 Description	For each area outer boundary which is not encoded clockwise.				
Message	Area outer boundary not encoded clockwise.				
Solution	Ensure area outer boundary is encoded clockwise.	Conformity	Part 3 (4.7.3.2).		
Test Case No. 1	SEAARE (A) outer boundary is encoded as clockwise.				
Location	32°25'00.42"S 60°42'18.18"E	S57 Encoding	SEAARE (A)		
Screen Capture					

Expected Test Results	T0016: An error “Area outer boundary not encoded clockwise” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500008	S-58 test No.	T0017	Type	C
S-58 Description	For each area inner boundary which is not encoded counter-clockwise.				
Message	Area inner boundary not encoded counter-clockwise.				
Solution	Ensure area inner boundary is encoded counter-clockwise.	Conformity	Part 3 (4.7.3.2).		
Test Case No. 1	SEAARE (A) inner boundary is encoded as counter clockwise.				
Location	32°25'00.42"S 60°42'18.18"E	S57 Encoding	SEAARE (A)		
Screen Capture					
Expected Test Results	T0017: An error “Area inner boundary not encoded counter-clockwise” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500008	S-58 test No.	T0020	Type	C
S-58 Description	For each object where a geometric primitive is not one of those permitted.				
Message	Geometric primitive of this type is not permitted on this object class.				
Solution	Use alternative geometric primitive or alternative object class as required.	Conformity	Appendix B.1 (3.3), Part 3 (5.1.1) and Supplement No2 Ch.4 (3.3.1).		
Test Case No. 1	SOUNG to isolated node.				
Location	32°24'51.77"S 60°42'34.31"E	S57 Encoding	SOUNDG		

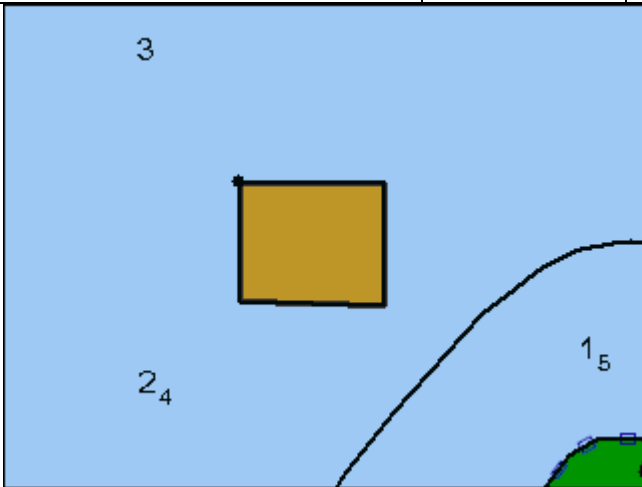
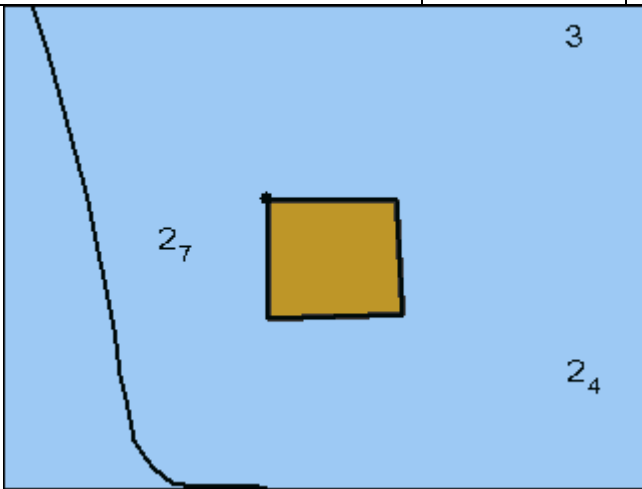
Screen Capture					
Expected Test Results	T0020: An error “Geometric primitive of this type is not permitted on this object class” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500008	S-58 test No.	T0080a	Type	C
S-58 Description	For each area object where an internal boundary is WITHIN an internal boundary.				
Message	Internal boundary WITHIN an internal boundary.				
Solution	Amend boundaries so that internal boundary is not WITHIN another internal boundary.		Conformity	Topology.	
Test Case No. 1	SEAARE (A)				
Location	32°24'51.50"S 60°42'09.21"E	S57 Encoding	SEAARE (A)		
Screen Capture					
Expected Test Results	T0080: An error “Internal boundary WITHIN an internal boundary” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500008	S-58 test No.	T0080b	Type	C
S-58 Description	For each area object where an internal boundary is not WITHIN an external boundary.				

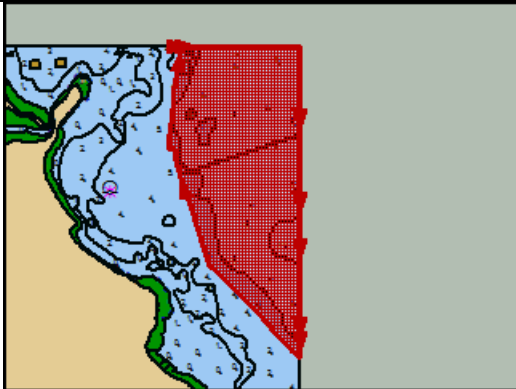
Message	Internal boundary outside of an external boundary.				
Solution	Amend boundaries so that internal boundary is WITHIN external boundary.		Conformity	Topology	
Test Case No. 2	SEAARE (A)				
Location	32°24'52.72"S 60°42'13.90"E	S57 Encoding	SEAARE (A)		
Screen Capture					
Expected Test Results	T0080: An error “Internal boundary outside of an external boundary” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500008	S-58 test No.	T0080c	Type	C
S-58 Description	For each area object where an external boundary is WITHIN an internal boundary.				
Message	External boundary WITHIN an internal boundary.				
Solution	Amend boundaries so that internal boundary is WITHIN external boundary.		Conformity	Topology	
Test Case No. 3	SEAARE (A)				
Location	32°24'52.92"S 60°42'17.29"E	S57 Encoding	SEAARE (A)		
Screen Capture					
Expected Test Results	T0080: An error “External boundary WITHIN an internal boundary” must be triggered.				
Secondary Errors	None				

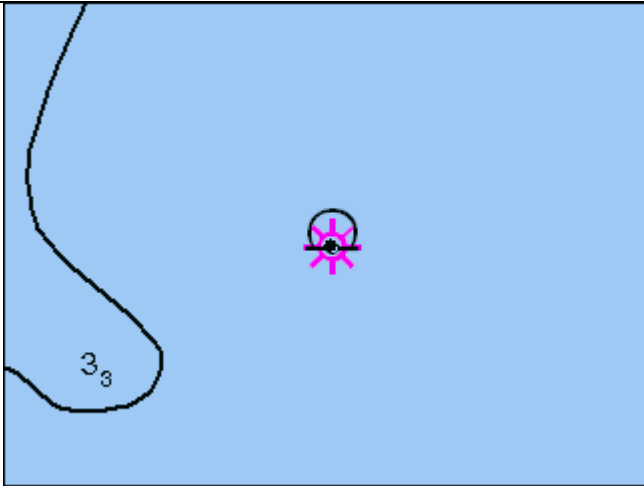
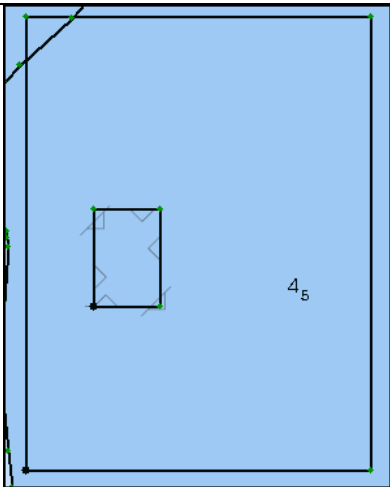
2.9. Test Dataset: AA500009

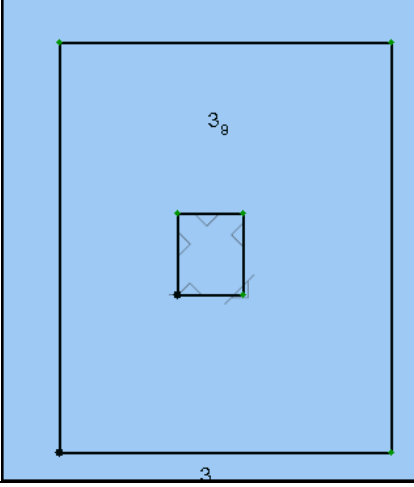
List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
553	For each Group 1 object where any of DATSTA, DATEND, PERSTA, PEREND are present and not Null.
1532	For each M_QUAL object where SURSTA is not equal to the smallest (oldest) value of SURSTA on any M_SREL objects WITHIN the M_QUAL object.
1721	For each RADRFL object which is associated with a navigational aid (BCNXXX, BOYXXX, LITFLT, LITVES objects).
1530	For each object WITHIN an M_QUAL object where SOUACC is not Null AND the value of SOUACC is equivalent to the SOUACC or CATZOC values on the M_QUAL object.

Dataset Name	AA500009	S-58 test No.	T0553	Type	C
S-58 Description	For each Group 1 object where any of DATSTA, DATEND, PERSTA, PEREND are present and not Null.				
Message	Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects.				
Solution	Delete these attributes from Group 1 objects.		Conformity	3.10.1 and logical consistency.	
Test Case No. 1	PONTON (A)				
Location	32°25'44.36"S 60°42'28.53"E	S57 Encoding	PONTON	PERSTA=20100102 PEREND=20110112 STATUS=5	
Screen Capture					
Expected Test Results	T0553: 2 errors “Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects” must be triggered.				
Secondary Errors	None				
Test Case No. 2	FLODOC (A)				
Location	32°25'44.81"S 60°42'21.44"E	S57 Encoding	FLODOC	DATSTA=20100719 DATEND=20110719	
Screen Capture					
Expected Test Results	T0553: 2 errors “Attributes DATSTA, DATEND, PERSTA or PEREND are encoded on Group 1 objects” must be triggered.				
Secondary Errors	None				

Dataset Name	AA500009	S-58 test No.	T1532	Type	E
S-58 Description	For each M_QUAL object where SURSTA is not equal to the smallest (oldest) value of SURSTA on any M_SREL objects WITHIN the M_QUAL object.				
Message	SURSTA on M_QUAL object does not relate to the oldest survey WITHIN the M_QUAL object.				
Solution	Amend value of SURSTA on M_QUAL to reflect the oldest survey within it.		Conformity	2.2.3.1	
Test Case No. 1	1 M_QUAL, 2 M_SREL.				
Location	32°26'04.12"S 60°43'14.77"E	S57 Encoding	M_QUAL M_SREL M_SREL	CATZOC=2 SURSTA=20120623 SUREND=20120723 SURSTA=20100723 SUREND=20120723 SURSTA=20110623 SUREND=20120723	
Screen Capture					
Expected Test Results	T1532: An error “SURSTA on M_QUAL object does not relate to the oldest survey WITHIN the M_QUAL object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500009	S-58 test No.	T1721	Type	E
S-58 Description	For each RADRFL object which is associated with a navigational aid (BCNXXX, BOYXXX, LITFLT, LITVES objects).				
Message	RADRFL encoded on a navigational aid.				
Solution	Encode CONRAD = (3) [radar conspicuous (has radar reflector)} on the navigational aid object.		Conformity	12.1.1	
Test Case No. 1	RADRFL on BOYSPP.				
Location	32°26'12.90"S : 60°42'41.49"E	S57 Encoding	BOYSPP RADRFL	CONRAD=3	

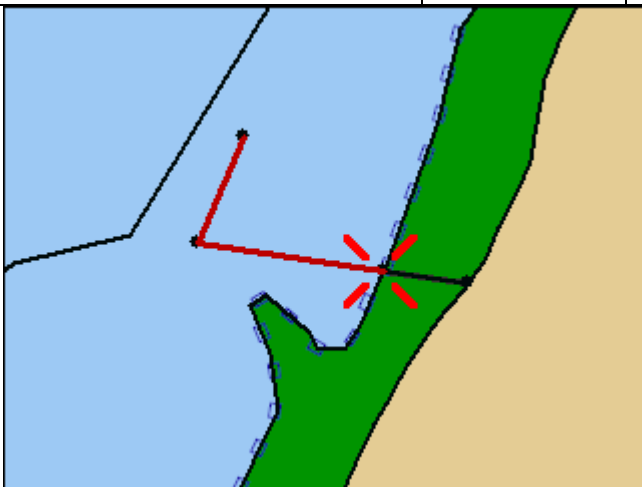
Screen Capture					
Expected Test Results	T1721: An error “RADRFL encoded on a navigational aid” must be triggered.				
Secondary Errors	T1762: An additional error “Unnecessary RADRFL encoded” must be triggered. T0516a: An additional warning "Master and slave point objects do not share the same node" must be triggered.				
Dataset Name	AA500009	S-58 test No.	T1530	Type	E
S-58 Description	For each object WITHIN an M_QUAL object where SOUACC is not Null AND the value of SOUACC is equivalent to the SOUACC or CATZOC values on the M_QUAL object.				
Message	SOUACC value on object is equivalent to value used on the M_QUAL it lies within.				
Solution	Remove unnecessary value of SOUACC.		Conformity	2.2.3.1 and 2.2.3.4	
Test Case No. 1	FAIRWY (A) SOUACC value encoded the same as the SOUACC value of the overlapping M_QUAL.				
Location	32°26'59.17"S 60°43'20.25"E	S57 Encoding	M_QUAL (A) FAIRWY (A)	CATZOC=6 SOUACC=5 DRVAL1=5 SOUACC=5	
Screen Capture					
Expected Test Results	T1530: An error “SOUACC value on object is equivalent to value used on the M_QUAL it lies within” must be triggered.				
Secondary Errors	None				

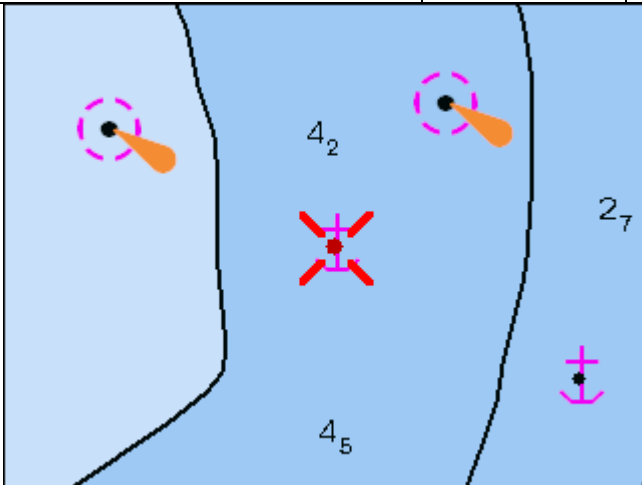
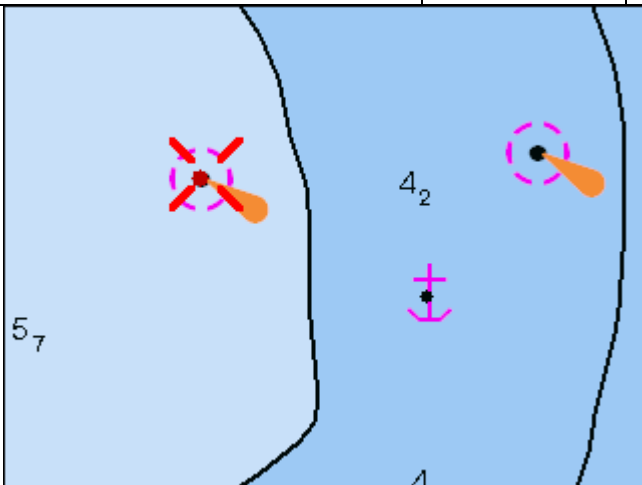
Test Case No. 2	FAIRWY (A) SOUACC value encoded the same as the CATZOC value of the overlapping M_QUAL.			
Location	32°26'50.20"S 60°43'23.07"E	S57 Encoding	M_QUAL (A) FAIRWY (A)	CATZOC=1 SOUACC=0.6 DRVAL1=5
Screen Capture				
Expected Test Results	T1530: An error "SOUACC value on object is equivalent to value used on the M_QUAL it lies within" must be triggered.			
Secondary Errors	T0513: An additional error "An attribute value given on a meta object is duplicated on a geo object" must be triggered.			

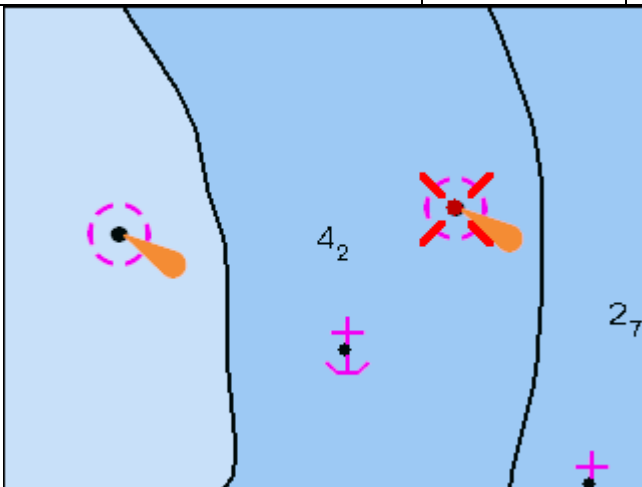
2.10. Test Dataset: AA500010

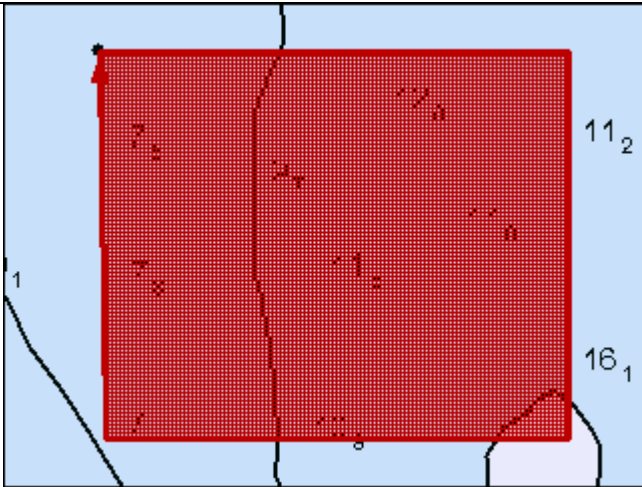
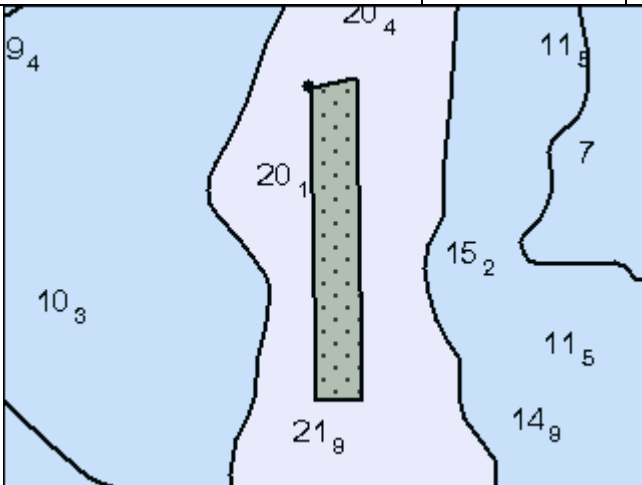
List of S-58 Recommended ENC Validation Checks covered in this section:

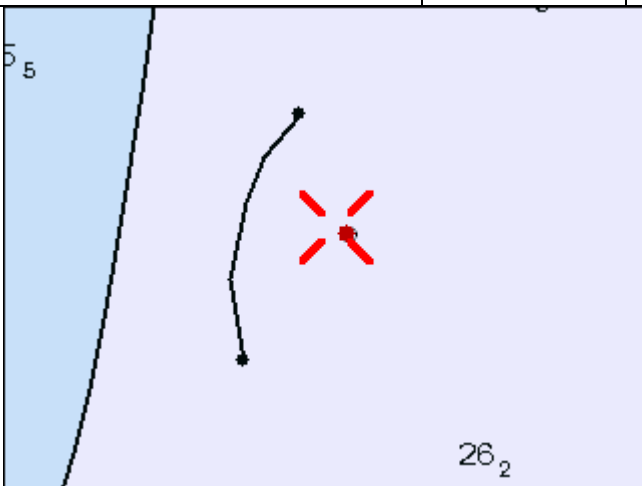
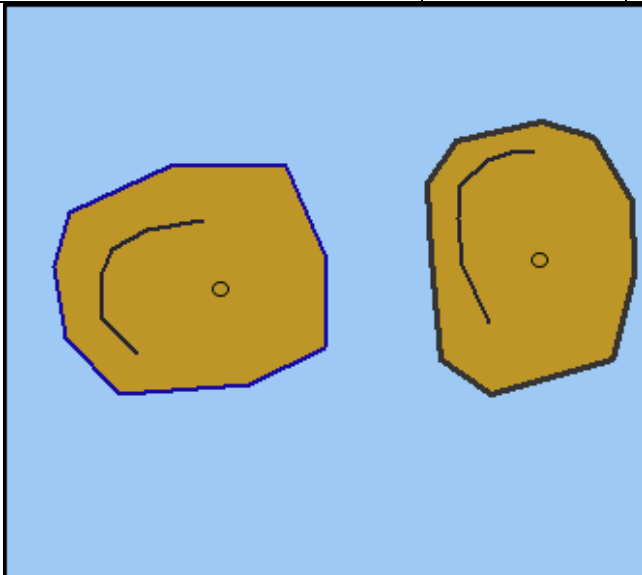
S-58 Test	Description
1	If any parts of two edges are COINCIDENT.
12	For each feature object which is not a C_(collection) object AND which does not have an FSPT.
46	For each object where DATEND and DATSTA are not Null DATEND is less than or equal to DATSTA.
47a	For each LIGHTS or RTPBCN object where SECTR1 is not Null and SECTR2 is null or equal to SECTR1. (0 and 360 must be treated as the same value).
47b	For each LIGHTS or RTPBCN object where SECTR2 is not Null and SECTR1 is null or equal to SECTR2.(0 and 360 must be treated as the same value).
48	For each M_SREL object where SCVAL1 and SCVAL2 are not Null AND SCVAL2 is less than SCVAL1.
49	For each object where DRVAL1 AND DRVAL2 are not Null AND DRVAL2 is less than DRVAL1.
52	For each LNDELV object of type point or line which is not WITHIN a LNDARE of type area AND is not COINCIDENT with a LNDARE of type line or point AND is not WITHIN a WRECKS object of type area which is always dry WATLEV=2 or partially submerged WATLEV=1.
53a	For each SLOGRD object which is not WITHIN a LNDARE object of type area.
53b	For each SLOTOP object which is not WITHIN a LNDARE object of type area.
83	For each node which is COINCIDENT with another node (connected or isolated).
87	For each edge with coincident consecutive vertices.

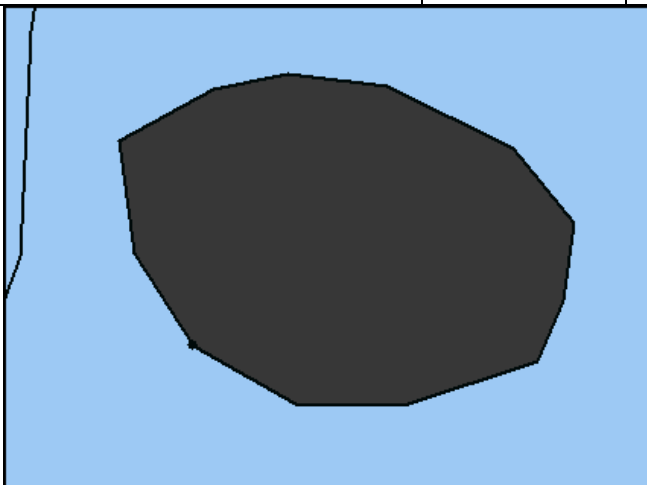
Dataset Name	AA500010	S-58 test No.	T0001	Type	E
S-58 Description	If any parts of two edges are COINCIDENT.				
Message	Partially duplicated edges.				
Solution	Remove duplication, add nodes and edit edges as required.	Conformity	Part 2 (2.2.1.2)		
Test Case No. 1	2 x SLCONS (L)				
Location	32°26'38.69"S 60°44'38.69"E	S57 Encoding	SLCONS (L)		
Screen Capture					
Expected Test Results	T0001: 4 errors “Partially duplicated edges” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0012	Type	C
S-58 Description	For each feature object which is not a C_ (collection) object AND which does not have an FSPT.				
Message	Missing FSPT [Feature Record to Spatial Record pointer field].				
Solution	Add FSPT [Feature Record to Spatial Record pointer field].	Conformity	Part 3 (4.7)		
Test Case No. 1	SLCONS (P)				
Location	Nil	S57 Encoding	SLCONS (P)		
Screen Capture	No preview is available for this case.				
Expected Test Results	T0012: An error “Missing FSPT [Feature Record to Spatial Record pointer field].” must be triggered.				
Secondary Errors	T0020: An additional error “Geometric primitive of this type is not permitted on this object class” must be triggered. T0544: An additional error “Object WITHIN an area of no coverage” must be triggered. T0548: An additional error “Cell not entirely covered by M_COVR objects” must be triggered.				
Dataset Name	AA500010	S-58 test No.	T0046	Type	E
S-58 Description	For each object where DATEND and DATSTA are not Null DATEND is less than or equal to DATSTA				
Message	DATEND less than DATSTA.				

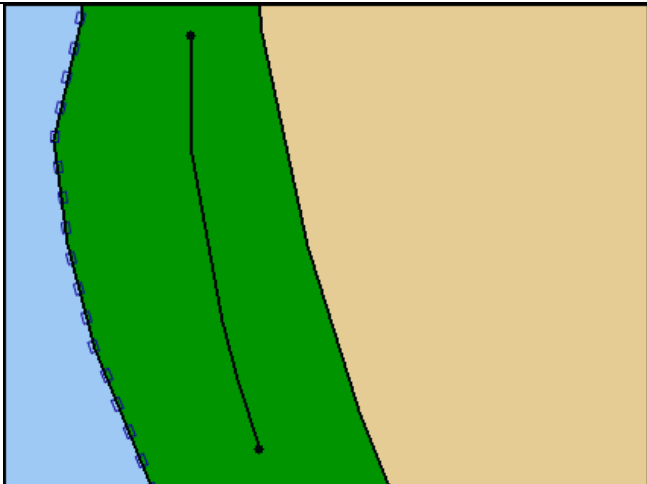
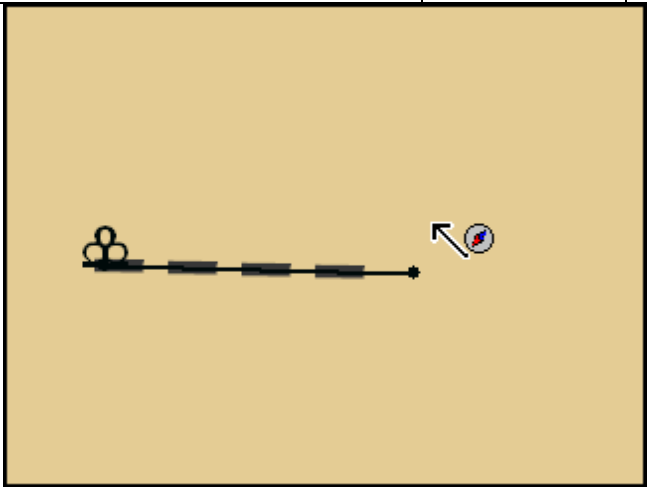
Solution	Amend values of DATEND or DATSTA accordingly.		Conformity	Logical consistency	
Test Case No. 1	ACHARE (P) with different dates for DATSTA and DATEND.				
Location	32°26'26.99"S 60°44'35.22"E	S57 Encoding	ACHARE (P)	DATSTA=25.06.2011 DATEND=25.06.2010	
Screen Capture					
Expected Test Results	T0046: An error "DATEND less than DATSTA" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0047a	Type	E
S-58 Description	For each LIGHTS or RTPBCN object where SECTR1 is not Null and SECTR2 is null or equal to SECTR1. (0 and 360 must be treated as the same value).				
Message	SECTR2 not populated with a valid value, must not be the same as SECTR1.				
Solution	Populate SECTR2 with a valid value.		Conformity	Logical consistency	
Test Case No. 1	LIGHTS and RTPBCN with only SECTR1 value encoded.				
Location	32°26'25.01"S 60°44'30.47"E	S57 Encoding	LIGHTS (P) RTPBCN (P)	SECTR1=30 SECTR1=30	
Screen Capture					
Expected Test Results	T0047a: 2 errors "SECTR2 not populated with a valid value, must not be the same as SECTR1" must be triggered.				
Secondary Errors	None				

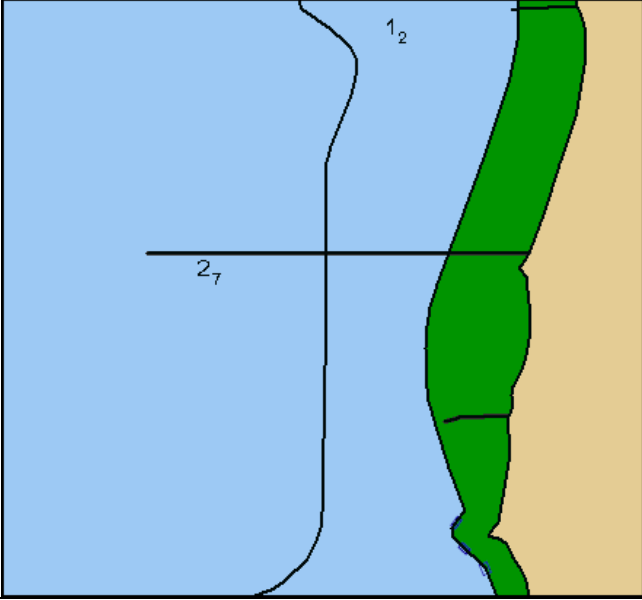
Dataset Name	AA500010	S-58 test No.	T0047b	Type	E
S-58 Description	For each LIGHTS or RTPBCN object where SECTR2 is not Null and SECTR1 is null or equal to SECTR2. (0 and 360 must be treated as the same value).				
Message	SECTR1 not populated with a valid value, must not be the same as SECTR2.				
Solution	Populate SECTR1 with a valid value.	Conformity	Logical consistency		
Test Case No. 2	LIGHTS and RTPBCN with only SECTR2 value encoded.				
Location	32°26'24.51"S 60°44'37.56"E	S57 Encoding	LIGHTS (P) RTPBCN (P)	SECTR2=30 SECTR2=30	
Screen Capture					
Expected Test Results	T0047b: 2 errors “SECTR1 not populated with a valid value, must not be the same as SECTR2” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0048	Type	E
S-58 Description	For each M_SREL object where SCVAL1 and SCVAL2 are not Null AND SCVAL2 is less than SCVAL1.				
Message	SCVAL2 is less than SCVAL1.				
Solution	Amend values of SCVAL1/2 value of SCVAL2 must be greater than SCVAL1.	Conformity	Logical consistency		
Test Case No. 1	M_SREL with attributes SCVAL1 and SCVAL2 encoded.				
Location	32°26'21.86"S 60°43'57.40"E	S57 Encoding	M_SREL	SCVAL1=15000 SCVAL2=10000	

Screen Capture					
Expected Test Results	T0048: An error "SCVAL2 is less than SCVAL1" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0049	Type	E
S-58 Description	For each object where DRVAL1 AND DRVAL2 are not Null AND DRVAL2 is less than DRVAL1.				
Message	DRVAL2 is less than DRVAL 1, DRVAL 2 must be greater than or equal to DRVAL1.				
Solution	Amend the values of DRVAL1 or DRVAL2 as required.	Conformity	Logical consistency		
Test Case No. 1	DRGARE with attribution for DRVAL1 and DRVAL2, where DRVAL1 is greater than DRVAL2.				
Location	32°26'43.17"S 60°44'10.73"E	S57 Encoding	DRGARE	DRVAL1=4 DRVAL2=3	
Screen Capture					
Expected Test Results	T0049: An error "DRVAL2 is less than DRVAL 1, DRVAL 2 must be greater than or equal to DRVAL1" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0052	Type	E
S-58 Description	For each LNDELV object of type point or line which is not WITHIN a LNDARE of type area AND is not COINCIDENT with a LNDARE of type line or point AND is not WITHIN a WRECKS object of type area which is always dry WATLEV=2 or partially submerged WATLEV=1.				

Message	LNDELV object not situated on LNDARE or on a drying or partially submerged WRECKS object.			
Solution	Ensure LNDELV object is situated on a LNDARE or on a drying/partially submerged WRECKS object.	Conformity	Appendix B1, Annex A (4.7.2, 4.7.4, 6.1.1 and 6.2.1)	
Test Case No. 1	LNDELV (L, P) overlapping a depth area.			
Location	32°27'25.82"S 60°43'58.53"E	S57 Encoding	LNDELV (L, P)	
Screen Capture				
Expected Test Results	T0052: 2 errors “LNDELV object not situated on LNDARE or on a drying or partially submerged WRECKS object” must be triggered.			
Secondary Errors	None			
Test Case No. 2	LNDELV (L, P) overlapping WRECKS (A) and point objects.			
Location	32°27'31.44"S 60°44'24.19"E	S57 Encoding	LNDELV (L) X2 LNDELV (P) X2 WRECKS (A) WRECKS (A)	ELEVAT=10 ELEVAT=10 WATLEV=2 WATLEV=1
Screen Capture				
Expected Test Results	T0052: 4 errors “LNDELV object not situated on LNDARE or on a drying or partially submerged WRECKS object” must not be triggered.			
Secondary Errors	None			

Dataset Name	AA500010	S-58 test No.	T0053a	Type	E
S-58 Description	For each SLOGRD object which is not WITHIN a LNDARE object of type area.				
Message	SLOGRD not covered by LNDARE.				
Solution	Amend LNDARE or SLOGRD accordingly.	Conformity	Appendix B1, Annex A (4.7.4, 4.7.5, 4.8.4)		
Test Case No. 1	SLOGRD (A) overlapping DEPARE (A).				
Location	32°25'41.64"S 60°44'46.92"E	S57 Encoding	SLOGRD (A)		
Screen Capture					
Expected Test Results	T0053a: An error “SLOGRD not covered by LNDARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0053b	Type	E
S-58 Description	For each SLOTOP object which is not WITHIN a LNDARE object of type area.				
Message	SLOTOP not covered by LNDARE.				
Solution	Amend LNDARE or SLOTOP accordingly.	Conformity	Appendix B1, Annex A (4.7.4, 4.7.5, 4.8.4)		
Test Case No. 1	SLOTOP (L) overlapping DEPARE (A).				
Location	32°25'41.87"S 60°44'49.88"E	S57 Encoding	SLOTOP (L)		

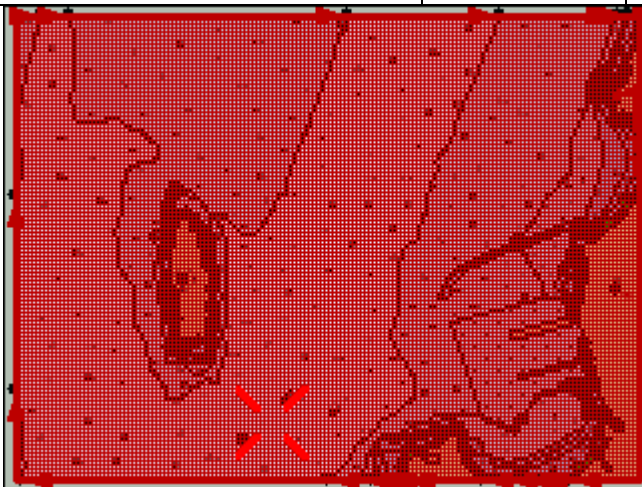
Screen Capture					
Expected Test Results	T0053b: An error “SLOTOP not covered by LNDARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0083	Type	W
S-58 Description	For each node which is COINCIDENT with another node (connected or isolated).				
Message	Nodes are coincident.				
Solution	Delete or amend coincident nodes.		Conformity	Topology	
Test Case No. 1	Two S57 objects captured as connected nodes coinciding with an isolated node.				
Location	32°27'25.74"S 60°44'33.23"E	S57 Encoding	LNDMRK (P) CBLOHD (L)		
Screen Capture					
Expected Test Results	T0083: A warning “Nodes are coincident” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500010	S-58 test No.	T0087	Type	E
S-58 Description	For each edge with coincident consecutive vertices.				
Message	Consecutive vertices are coincident.				

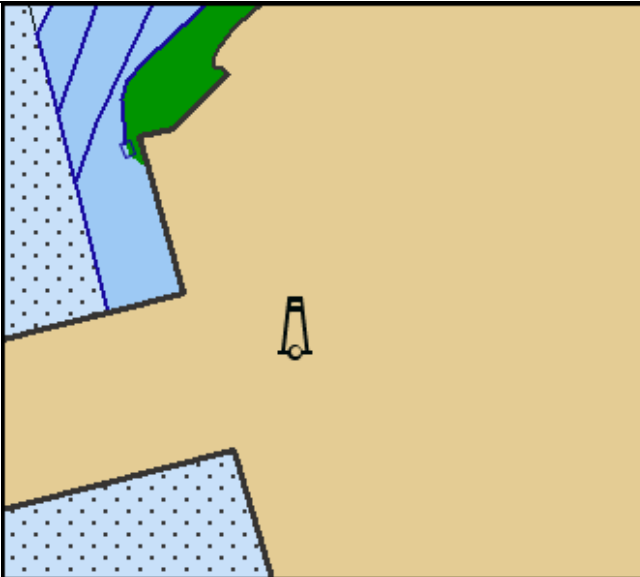
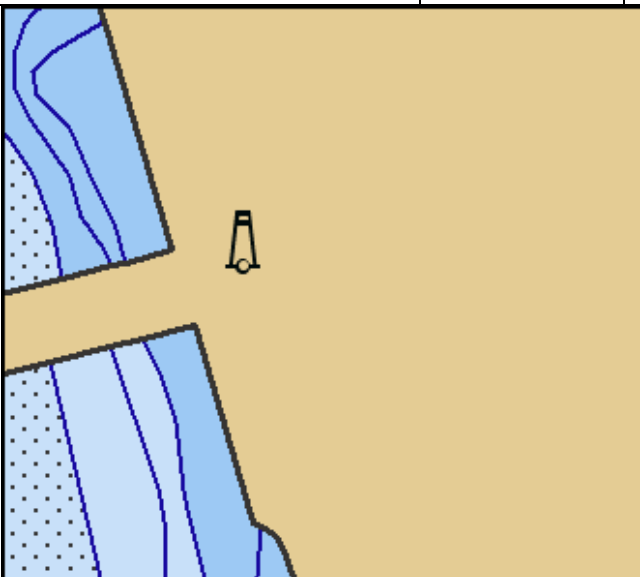
Solution	Remove coincident vertices from edge.		Conformity	Part 3 (4.7.2)
Test Case No. 1	SLCONS (L) captured as a straight line with a vertex.			
Location	32°26'08.31"S 60°44'44.61"E	S57 Encoding	SLCONS (L)	
Screen Capture				
Expected Test Results	T0087: An error "Consecutive vertices are coincident" must be triggered.			
Secondary Errors	None			

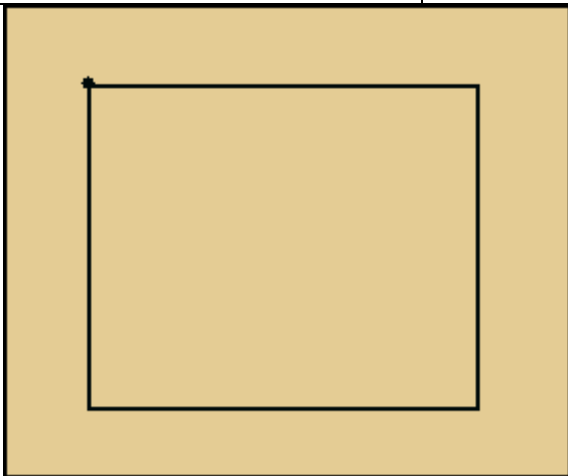
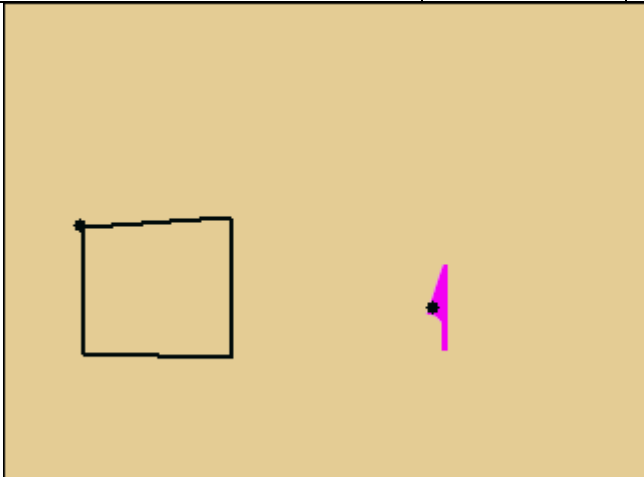
2.11. Test Dataset: AA500011


List of S-58 Recommended ENC Validation Checks covered in this section:

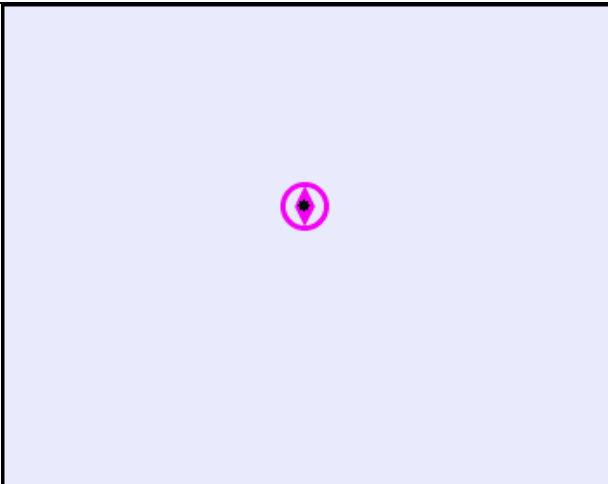
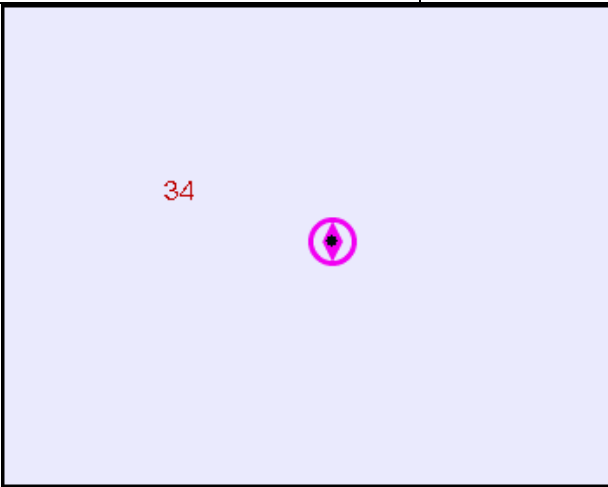
S-58 Test	Description
501	If the combined coverage of all M_COV R objects limits are not rectangular.
508a	For each object where more than one value of COLOUR are encoded that COLPAT is 'Null'.
508b	For each object where COLPAT is 'not Null' that COLOUR is 'Null' OR only has one value.
511	For each object where any of DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS, CATQUA are null or not Null.
521a	For all objects where OBJNAM AND NOBJNM are 'not Null' AND that they are EQUAL.
521b	For all objects where INFORM and NINFOM are 'not Null' AND that they are EQUAL.
521c	For all objects where PILDST and NPLDST are 'not Null' AND that they are EQUAL.
521d	For all objects where TXTDSC and NTXTDS are 'not Null' AND that they are EQUAL.
522	For all objects where NOBJNM is 'not Null' AND OBJNAM is 'Null' OR not present.
524	Where DUNI does not equal 1 [metres].
1510	If the SDAT (Sounding Datum subfield) of the DPSM (Data Set Parameter field) is null.
1542	For each object WITHIN an M_ACCY object where the value of POSACC (on the associated spatial object) is equivalent to the value of POSACC on the M_ACCY object it lies WITHIN.

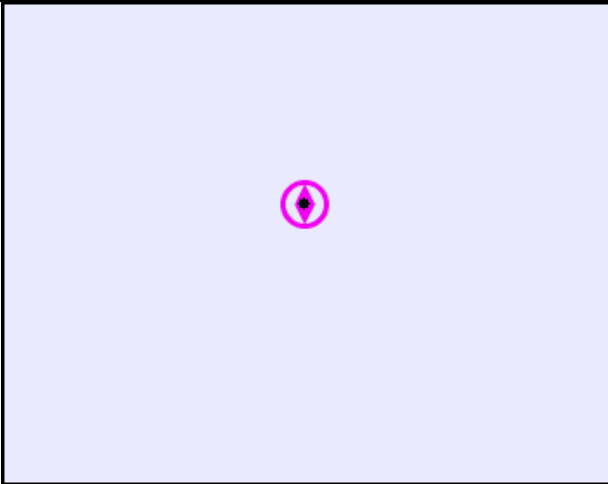
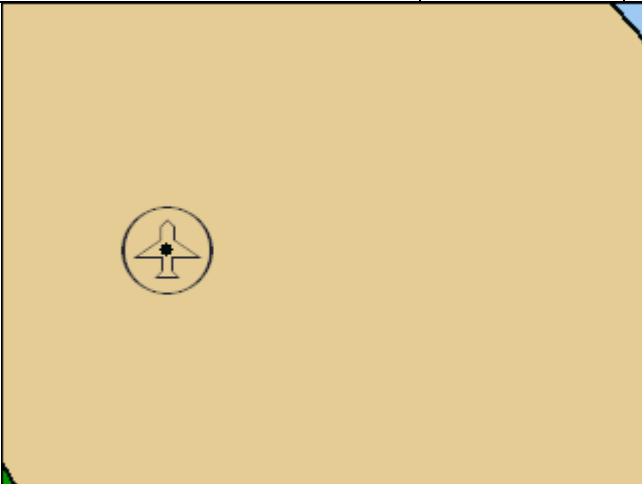
Dataset Name	AA500011	S-58 test No.	T0501	Type	E
S-58 Description	If the combined coverage of all M_COV R objects limits are not rectangular.				
Message	Cell is not rectangular.				
Solution	Amend cell limits to make them rectangular.	Conformity	2.2		
Test Case No. 1	Modified south east corner co-ordinate values.				
Location	32°27'32.61"S 60°49'26.23"E	S57 Encoding	M_COVR (A)		
Screen Capture					
Expected Test Results	T0501: An error “Cell is not rectangular” must be triggered.				
Secondary Errors	T0548: 15 additional errors "Cell not entirely covered by M_COVR objects" must be triggered.				
Dataset Name	AA500011	S-58 test No.	T0508a	Type	E
S-58 Description	For each object where more than one value of COLOUR are encoded that COLPAT is ‘Null’.				
Message	COLOUR has multiple values without a value for COLPAT.				
Solution	Ensure COLPAT has a value where multiple COLOUR values are encoded.	Conformity	3.5.2 and Logical consistency		
Test Case No. 1	LNDMRK (P) with attribution for COLOUR and COLPAT unassigned.				
Location	32°26'53.54"S 60°49'09.77"E	S57 Encoding	LNDMRK (P)	CATLMK=17 COLOUR=1,3 COLPAT=UNDEFINED	

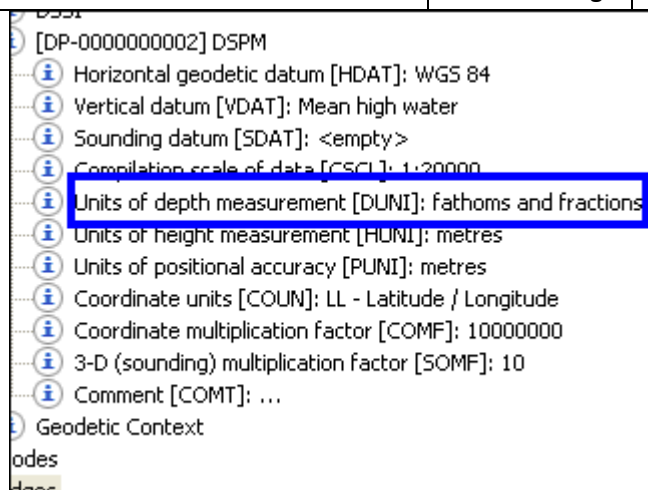
Screen Capture					
Expected Test Results	T0508a: An error “COLOUR has multiple values without a value for COLPAT” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0508b	Type	E
S-58 Description	For each object where COLPAT is ‘not Null’ that COLOUR is 'Null' OR only has one value.				
Message	COLPAT is populated without multiple COLOUR values.				
Solution	Ensure multiple COLOUR values are populated or delete COLPAT value.		Conformity	3.5.2 and Logical consistency	
Test Case No. 1	LNDMRK (P) with attribution for COLOUR and COLPAT encoded.				
Location	32°27'03.07"S 60°49'12.81"E	S57 Encoding	LNDMRK (P)	CATLMK=17 COLOUR=1 COLPAT=5	
Screen Capture					
Expected Test Results	T0508b: An error “COLPAT is populated without multiple COLOUR values” must be triggered.				

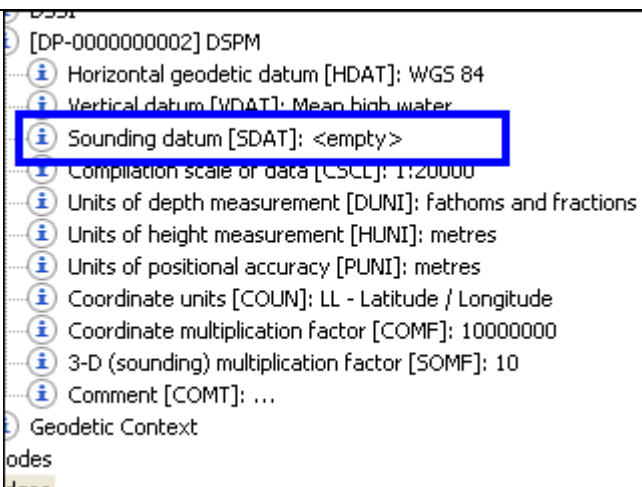
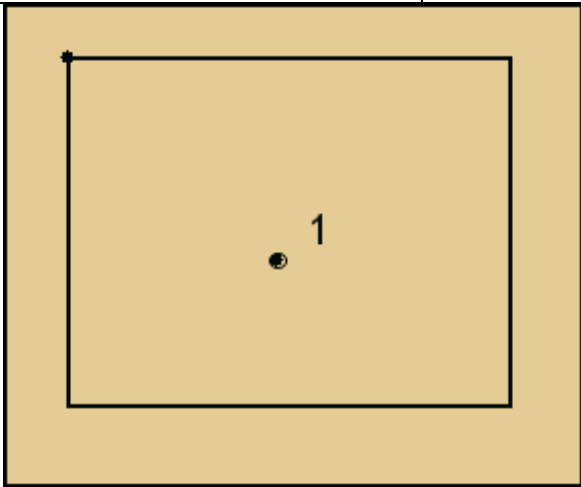
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0511	Type	C
S-58 Description	For each object where any of DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS, CATQUA are null or not Null.				
Message	Prohibited attributes have been encoded.				
Solution	Delete prohibited attributes.		Conformity	3.5.3	
Test Case No. 1	M_UNIT with attribute values for PUNITS, DUNITS, HUNITS, RECDAT and RECIND encoded.				
Location	32°27'29.76"S 60°49'17.69"E	S57 Encoding	M_UNIT (A)	PUNITS=1 DUNITS=1 HUNITS=1 RECDAT=15.02.2010 RECIND=US,US,digi	
Screen Capture					
Expected Test Results	T0511: 4 errors “Prohibited attributes have been encoded” must be triggered.				
Secondary Errors	T0504: An additional error “Prohibited objects exist within the dataset” must be triggered. T0545: An additional error “Object has invalid object class code” must be triggered.				
Test Case No. 2	M_QUAL with attribute values encoded for CATZOC and CATQUA; MAGVAR with attribute value encoded for SCAMAX.				
Location	32°26'05.44"S 60°49'23.46"E	S57 Encoding	MAGVAR (P) M_QUAL (A)	SCAMAX=15000 CATQUA=1	
Screen Capture					

Expected Test Results	T0511: 2 errors “Prohibited attributes have been encoded” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0521a	Type	W
S-58 Description	For all objects where OBJNAM AND NOBJNM are ‘not Null’ AND that they are EQUAL.				
Message	Values for OBJNAM and NOBJNM are identical.				
Solution	Ensure that national language attributes are populated with the correct values.	Conformity	3.11.1		
Test Case No. 1	PILBOP (P)				
Location	32°27'22.98"S 60°47'33.15"E	S57 Encoding	PILBOP (P)	OBJNAM= Judith Harbor NOBJNM= Judith Harbor	
Screen Capture					
Expected Test Results	T0521a: A warning “Values for OBJNAM and NOBJNM are identical” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0521b	Type	W
S-58 Description	For all objects where INFORM and NINFOM are ‘not Null’ AND that they are EQUAL.				
Message	Values for INFORM and NINFOM are identical.				
Solution	Ensure that national language attributes are populated with the correct values.	Conformity	3.11.1		
Test Case No. 1	PILBOP (P)				
Location	32°27'22.98"S 60°47'42.05"E	S57 Encoding	PILBOP (P)	INFORM= Judith Harbor NINFOM= Judith Harbor	

Screen Capture					
Expected Test Results	T0521b: A warning “Values for INFORM and NINFOM are identical” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0521c	Type	W
S-58 Description	For all objects where PILDST and NPLDST are ‘not Null’ AND that they are EQUAL.				
Message	Values for PILDST and NPLDST are identical.				
Solution	Ensure that national language attributes are populated with the correct values.		Conformity	3.11.1	
Test Case No. 1	PILBOP (P)				
Location	32°27'22.67"S 60°47'50.65"E	S57 Encoding	PILBOP (P)	PILDST= Judith Harbor NPLDST= Judith Harbor	
Screen Capture					
Expected Test Results	T0521c: A warning “Values for PILDST and NPLDST are identical” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0521d	Type	W
S-58 Description	For all objects where TXTDSC and NTXTDS are ‘not Null’ AND that they are EQUAL.				
Message	Values for TXTDSC and NTXTDS are identical.				

Solution	Ensure that national language attributes are populated with the correct values.		Conformity	3.11.1	
Test Case No. 1	PILBOP (P)				
Location	32°27'23.45"S 60°47'23.14"E	S57 Encoding	PILBOP (P)	TXTDSC=AA123456.TX T NTXTDS=AA123456.T XT	
Screen Capture					
Expected Test Results	T0521d: A warning “Values for TXTDSC and NTXTDS are identical” must be triggered				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0522	Type	E
S-58 Description	For all objects where NOBJNM is ‘not Null’ AND OBJNAM is ‘Null’ OR not present.				
Message	Object name in national language is populated without Object name.				
Solution	Populate Object name.		Conformity	3.11.1	
Test Case No. 1	AIRARE (P) with attribution for NOBJNM but not OBJNAM.				
Location	32°26'44.54"S : 60°47'16.32"E	S57 Encoding	AIRARE (P)	NOBJNM=Judith	
Screen Capture					
Expected Test Results	T0522: An error “Object name in national language is populated without Object name” must be triggered.				

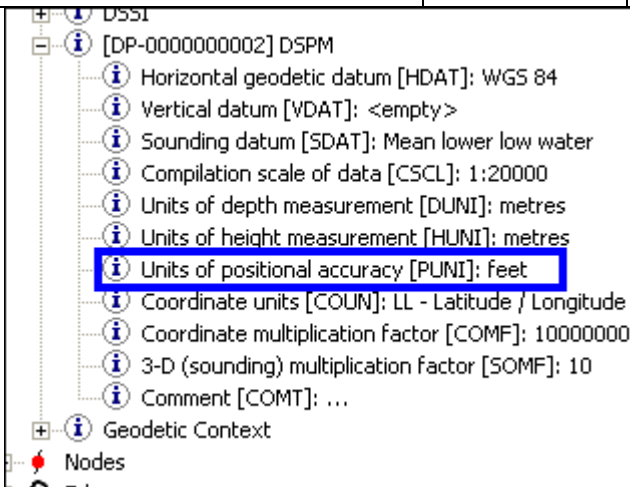
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T0524	Type	C
S-58 Description	Where DUNI does not equal 1 [metres].				
Message	DUNI does not equal 1 metres.				
Solution	Ensure DUNI equals 1 metres.	Conformity	4.4		
Test Case No. 1	Modified depth units in DSPM parameters.				
Location	DSPM Parameters	S57 Encoding		DUNI=4	
Screen Capture					
Expected Test Results	T0524: An error “DUNI does not equal 1 metre” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T1510	Type	C
S-58 Description	If the SDAT (Sounding Datum subfield) of the DSPM (Data Set Parameter field) is null.				
Message	SDAT (Sounding Datum subfield) is not populated.				
Solution	Populate SDAT (Sounding Datum subfield).	Conformity	2.1.3		
Test Case No. 1	Modified SDAT in DSPM parameters.				
Location	DSPM Parameters	S57 Encoding		SDAT= EMPTY	

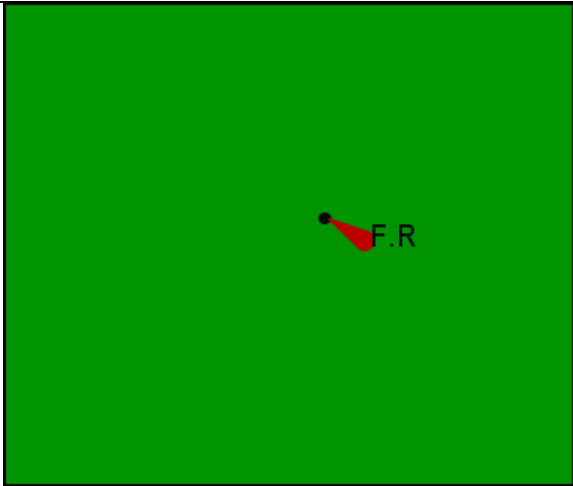
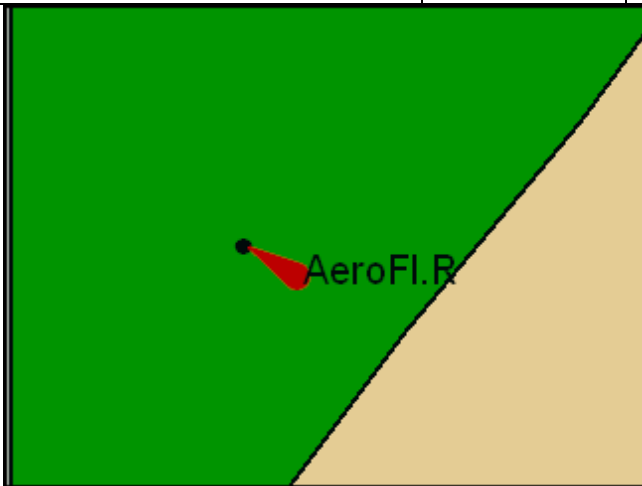
Screen Capture					
Expected Test Results	T1510: An error “SDAT (Sounding Datum subfield) is not populated” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500011	S-58 test No.	T1542	Type	E
S-58 Description	For each object WITHIN an M_ACCY object where the value of POSACC (on the associated spatial object) is equivalent to the value of POSACC on the M_ACCY object it lies WITHIN.				
Message	POSACC on object equivalent to that on the underlying M_ACCY object.				
Solution	Remove unnecessary value.		Conformity	2.2.4.1	
Test Case No. 1	LNDELV (P) POSACC value equivalent to M_ACCY POSACC value.				
Location	32°27'20.07"S 60°49'20.97"E	S57 Encoding	M_ACCY (A) LNDELV (P)	POSACC=5 POSACC=5	
Screen Capture					
Expected Test Results	T1542: An error “POSACC on object equivalent to that on the underlying M_ACCY object” must be triggered.				
Secondary Errors	None				

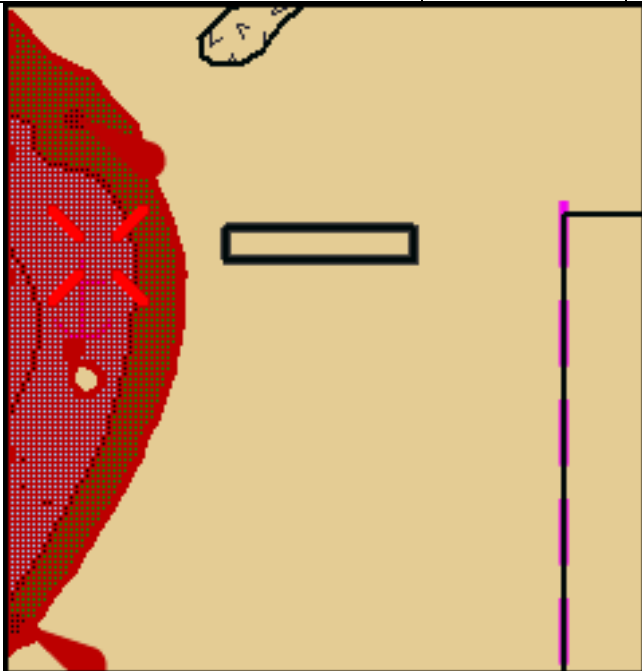
2.12. Test Dataset: AA500012

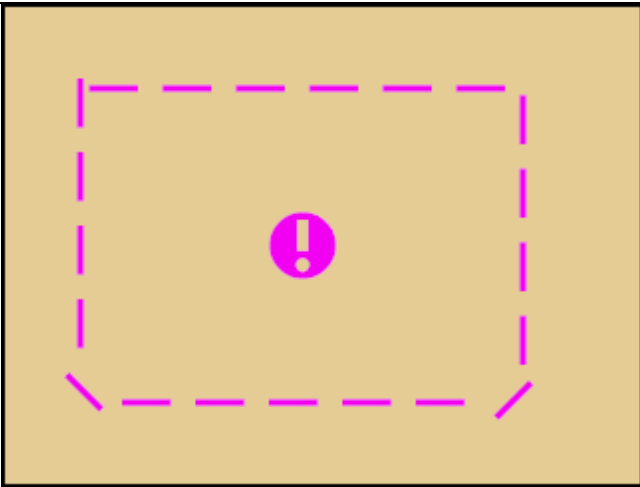
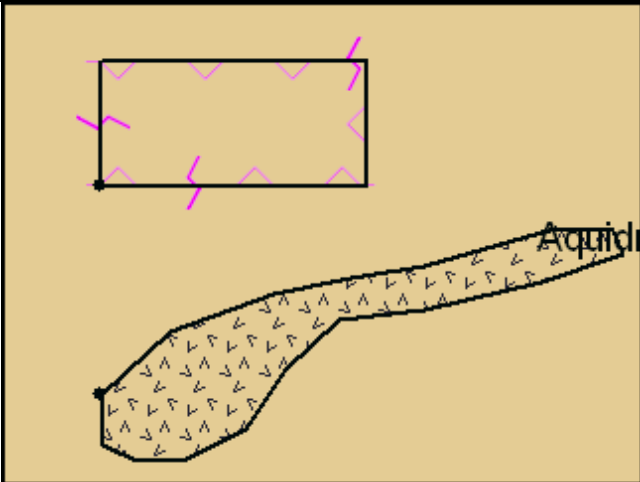
List of S-58 Recommended ENC Validation Checks covered in this section:

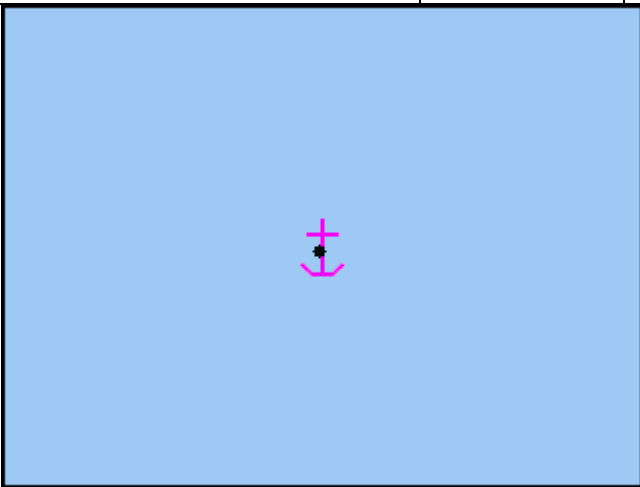
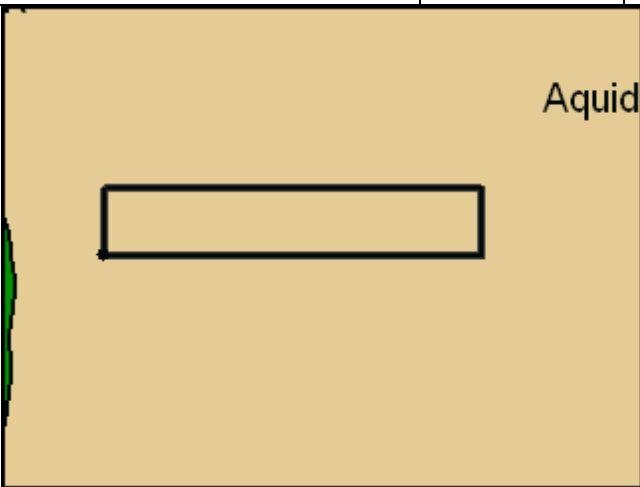
S-58 Test	Description
525	Where PUNI does not equal 1 [metres].
541a	For all objects of type LIGHTS If CATLIT is EQUAL TO 1 [Fixed] AND SIGGRP is encoded.
542	For all objects of type LIGHTS If CATLIT is NOT EQUAL TO 1 [Fixed] where SIGGRP does not start and finish with a bracket.
547	For each object which contains attributes outside the list of permissible attributes for the object's class (as defined in the Object Catalogue and S-57 Supplement No 2 for the specified object).
562	For all objects of type NEWOBJ where INFORM or TXTDSC does not contain the CLSNAM of the feature.
1500	For each LNDARE of type area which OVERLAPS a CBLARE or SBDARE of type area.
1502	For each feature object except M_HOPA where the attribute HORDAT is present.
1503	For each object not of type M_VDAT and M_SDAT where VERDAT is not Null AND none of the following are not Null ELEVAT, HEIGHT, VERCCL, VERCLR, VERCOP or VERCSA.
1504	If the value of VDAT (Vertical Datum subfield) of the DPSM (Data set Parameter field) is NULL.

Dataset Name	AA500012	S-58 test No.	T0525	Type	C
S-58 Description	Where PUNI does not equal 1 [metres].				
Message	PUNI does not equal 1 metres.				
Solution	Ensure PUNI equals 1 metres.	Conformity	4.4		
Test Case No. 1	PUNI=4 (feet) has been assigned				
Location	DSPM Parameters				
Screen Capture					
Expected Test Results	T0525: An error “PUNI does not equal 1 metres” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500012	S-58 test No.	T0541a	Type	E
S-58 Description	For all objects of type LIGHTS If CATLIT is EQUAL TO 1 [Fixed] AND SIGGRP is encoded.				
Message	SIGGRP is encoded for a fixed light.				
Solution	Delete SIGGRP from fixed light.	Conformity	Appendix A Ch.2 (code 141).		
Test Case No. 1	LIGHTS with SIGGRP attribution.				
Location	32°26'10.42"S 60°49'28.40"E	S57 Encoding	LIGHTS (P)	CATLIT= 1 (Fixed) SIGGRP=(1)	

Screen Capture					
Expected Test Results	T0541: An error “SIGGRP is encoded for a fixed light” must be triggered.				
Secondary Errors	T1752: An additional error “SIGGRP, SIGPER or SIGSEQ present for LIGHTS object where LITCHR = (1) [fixed]” must be triggered.				
Dataset Name	AA500012	S-58 test No.	T0542	Type	E
S-58 Description	For all objects of type LIGHTS If CATLIT is NOT EQUAL TO 1 [Fixed] where SIGGRP does not start and finish with a bracket.				
Message	SIGGRP is not formatted correctly.				
Solution	Correct the formatting of SIGGRP.		Conformity	Appendix A Ch.2 (code 141).	
Test Case No. 1	LIGHTS with SIGGRP attribution.				
Location	32°26'23.10"S 60°49'26.61"E	S57 Encoding	LIGHTS (P)	SIGGRP=1	
Screen Capture					
Expected Test Results	T0542: An error “SIGGRP is not formatted correctly” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500012	S-58 test No.	T0547	Type	C
S-58 Description	For each object which contains attributes outside the list of permissible attributes for the object's class (as defined in the Object Catalogue and S-57 Supplement No 2 for the specified object).				

Message	Attribute not permitted on object class.				
Solution	Remove attribute.		Conformity	3.2 and Supplement No2 Ch.2.	
Test Case No. 1	HRBARE with attribution.				
Location	32°26'16.87"S 60°49'28.68"E	S57 Encoding	HRBARE (A)	DATSTA=20120701 DATEND=20120709	
Screen Capture					
Expected Test Results	T0547: 2 errors “Attribute not permitted on object class” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500012	S-58 test No.	T0562	Type	C
S-58 Description	For all objects of type NEWOBJ where INFORM or TXTDSC does not contain the CLSNAM of the feature.				
Message	CLSNAM not included in INFORM or TXTDSC for a NEWOBJ object.				
Solution	Populate INFORM or TXTDSC with the CLSNAM of the New Object.		Conformity	Supplement No2 Ch.4 (3.3.1) and Appendix B1, Annex A (16).	
Test Case No. 1	NEWOBJ with attribution.				
Location	32°26'18.63"S 60°49'53.72"E	S57 Encoding	NEWOBJ (A)	CLSDEF=CLSDEF CLSNAM=New Object INFORM=Newobject	

Screen Capture					
Expected Test Results	T0562: An error “CLSNAM not included in INFORM or TXTDSC for a NEWOBJ object” must be triggered.				
Secondary Errors	T0566: An additional error “Invalid use of New Object” must be triggered.				
Dataset Name	AA500012	S-58 test No.	T1500	Type	W
S-58 Description	For each LNDARE of type area which OVERLAPS a CBLARE or SBDARE of type area.				
Message	SBDARE or CBLARE sit on a LNDARE object.				
Solution	Amend CBLARE or SBDARE objects these objects should not sit on land.		Conformity	Logical consistency	
Test Case No. 1	SBDARE (A) on LNDARE. CBLARE (A) on LNDARE.				
Location	32°26'06.70"S 60°49'34.42"E	S57 Encoding	SBDARE (A) CBLARE (A)		
Screen Capture					
Expected Test Results	T1500: 2 warnings “SBDARE or CBLARE sit on a LNDARE object” must be triggered.				
Secondary Errors	T0093a: An additional error “Object with WATLEV 4 or 5 on a LNDARE object” must be triggered.				
Dataset Name	AA500012	S-58 test No.	T1502	Type	E
S-58 Description	For each feature object except M_HOPA where the attribute HORDAT is present.				

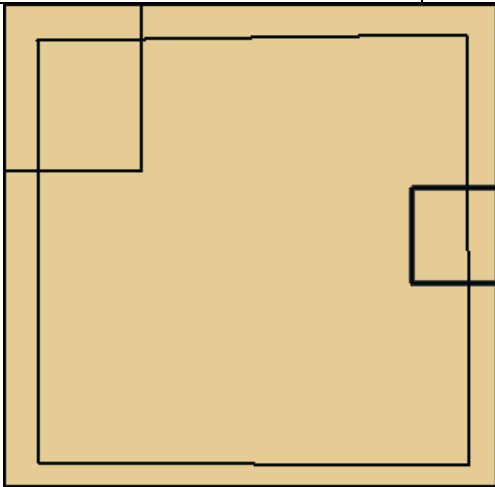
Message	HORDAT used on an object.				
Solution	Remove HORDAT.			Conformity	2.1.1
Test Case No. 1	ACHARE (P)				
Location	32°26'15.08"S 60°49'28.50"E	S57 Encoding	ACHARE (P)	HORDAT=2	
Screen Capture					
Expected Test Results	T1502: An error “HORDAT used on an object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500012	S-58 test No.	T1503	Type	E
S-58 Description	For each object not of type M_VDAT and M_SDAT where VERDAT is not Null AND none of the following are not Null ELEVAT, HEIGHT, VERCCL, VERCLR, VERCOP or VERCSA.				
Message	Value of VERDAT without corresponding vertical distance value.				
Solution	Remove VERDAT or populate vertical distance attribute.		Conformity	2.1.2	
Test Case No. 1	BRIDGE (A)				
Location	32°26'13.47"S 60°49'35.55"E	S57 Encoding	BRIDGE (A)	VERDAT=3	
Screen Capture					
Expected Test Results	T1503: An error “Value of VERDAT without corresponding vertical distance value” must be triggered.				
Secondary Errors	None				

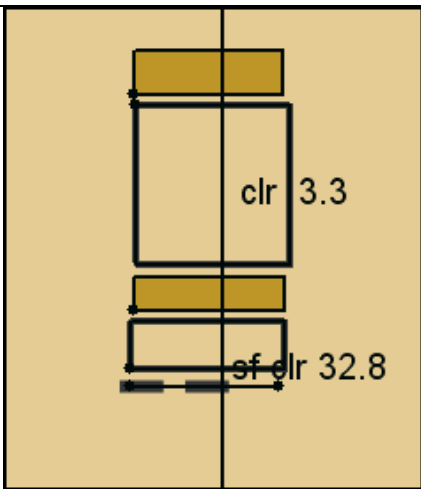
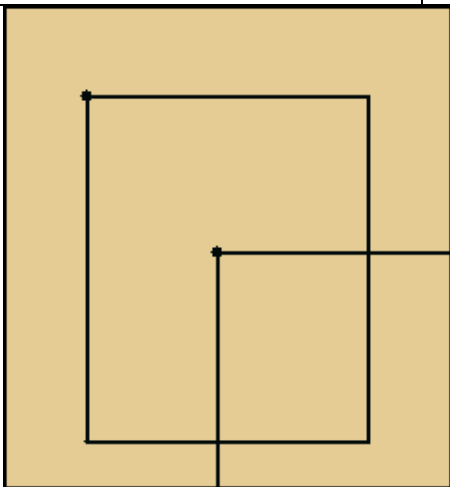
Dataset Name	AA500012	S-58 test No.	T1504	Type	C
S-58 Description	If the value of VDAT (Vertical Datum subfield) of the DPSM (Data set Parameter field) is NULL.				
Message	Vertical Datum subfield (VDAT) not populated within DPSM field.				
Solution	Populate VDAT with the vertical datum of the cell.	Conformity	2.1.2		
Test Case No. 1	VDAT has been assigned “0” null value.				
Location	DSPM Parameters				
Screen Capture					
Expected Test Results	T1504: An error “Vertical Datum subfield (VDAT) not populated within DPSM field” must be triggered.				
Secondary Errors	None				

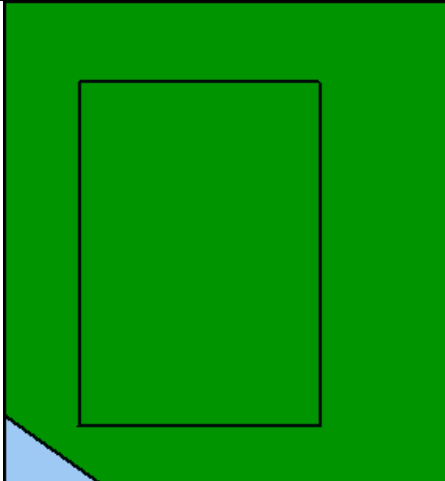
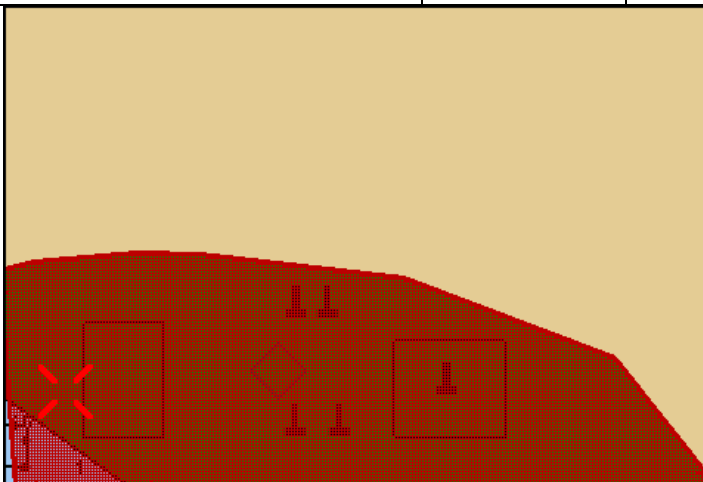
2.13. Test Dataset: AA500013

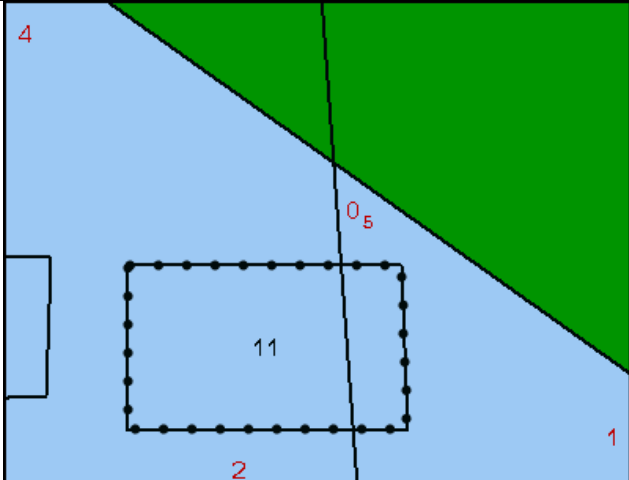
List of S-58 Recommended ENC Validation Checks covered in this section:

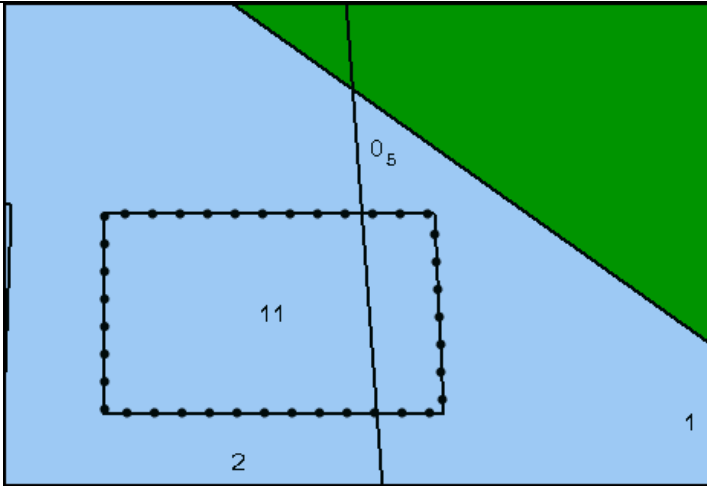
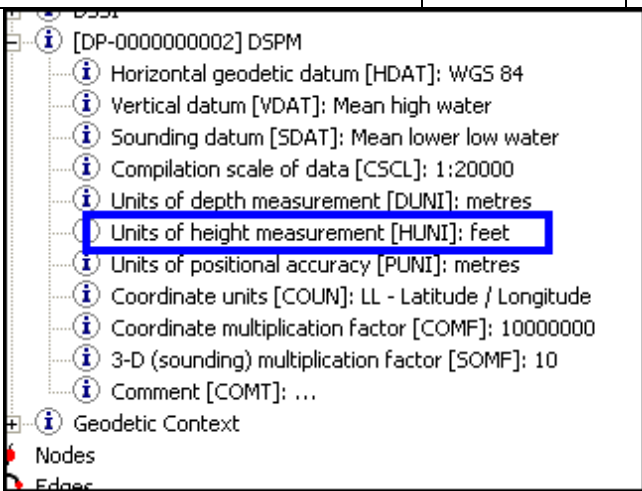
S-58 Test	Description
1505	For each M_VDAT object where VERDAT is equal to the value of VDAT (Vertical Datum subfield) of the DSPM (Data Set Parameter field).
1506	For each object where any of ELEVAT, HEIGHT, VERCCL, VERCLR, VERCOP or VERCSEA is not Null AND which OVERLAPS more than one M_VDAT object.
1507	For each object of type M_VDAT which OVERLAPS another object of type M_VDAT.
1508	For each object of type M_SDAT which OVERLAPS another object of type M_SDAT.
1511	For each M_SDAT object where VERDAT is equal to the value of SDAT (Sounding Datum subfield) of the DSPM (Data Set Parameter field).
1512a	For each object of type SOUNDG which OVERLAPS more than one M_SDAT object.
1512b	For each object of where any of VALSOU, VALDCO, WATLEV, EXPSOU, DRVAL1 or DRVAL2 is not Null AND which OVERLAPS more than one M_SDAT object.
1513	If the value of the HUNI (Units of Height measurement subfield) of the DSPM (Data Set Parameter field) is not equal to (1) [metres].
1515a	For each object where a value of DATEND, DATSTA, PEREND, PERSTA, does not conform to the formatting defined in ISO 8601:1988.
1515b	For each object where a value of SORDAT, CPDATE, SUREND or SURSTA does not conform to the formatting defined in ISO 8601:1988.
1516	For each Group 2 object having STATUS, PERSTA and PEREND allowable where STATUS equals (5) [periodic/intermittent] AND PERSTA or PEREND are null or not present.
1517	For each object where TIMSTA OR TIMEND is not Null AND their values do not conform to the format defined in Chapter 2 of S-57 Appendix A.
1014	If the value of the EDTN (Edition Number) subfield of the DSID (Data Set Identification) field is incorrect.
1523b	If the data set file name extension equals ".000" AND the ISDT (Issue date) subfield of the DSID (Data Set Identification) field is less than the value of the UADT (Update application date) subfield.
1525	For each M_QUAL object where POSACC is not Null AND DRVAL1 is not Null.
1529	For each object WITHIN an M_QUAL object where TECSOU is not Null AND the value of TECSOU is equivalent to the TECSOU on the M_QUAL object.
1535	For each UWTRC object where SOUACC is not Null AND it is identical to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.

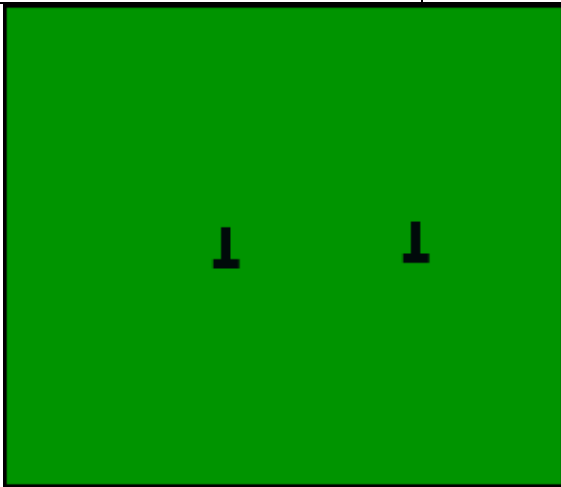
Dataset Name	AA500013	S-58 test No.	T1505	Type	E
S-58 Description	For each M_VDAT object where VERDAT is equal to the value of VDAT (Vertical Datum subfield) of the DSPM (Data Set Parameter field).				
Message	Value of VERDAT matches that in the VDAT subfield of the DSPM field.				
Solution	Remove unnecessary value of VERDAT.	Conformity	2.1.2		
Test Case No. 1	M_VDAT (A) VERDAT equal to the Data Set Parameter field (DSPM) Vertical Datum subfield (VDAT)				
Location	32°29'06.92"S 60°51'26.34"E	S57 Encoding	M_VDAT (A)	VERDAT=16	
Screen Capture					
Expected Test Results	T1505: An error “Value of VERDAT matches that in the VDAT subfield of the DSPM field” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1506	Type	E
S-58 Description	For each object where any of ELEVAT, HEIGHT, VERCCL, VERCLR, VERCOP or VERCSEA is not Null AND which OVERLAPS more than one M_VDAT object.				
Message	Object with height value not split at boundary of M_VDAT object.				
Solution	Split object at boundary of M_VDAT object.	Conformity	2.1.2		
Test Case No. 1	BRIDGE (A) crosses M_VDAT object boundary.				
Location	32°29'07.50"S 60°51'36.99"E	S57 Encoding	M_VDAT (A) BUIISGL (A) BRIDGE (A) X2 CBLOHD (L) LNDMRK (A)	VERDAT=16 ELEVAT=32.8 VERCLR=3.3 VERCCL=16.4 VERCOP=32.8 VERCSA=32.8 HEIGHT=75.5	

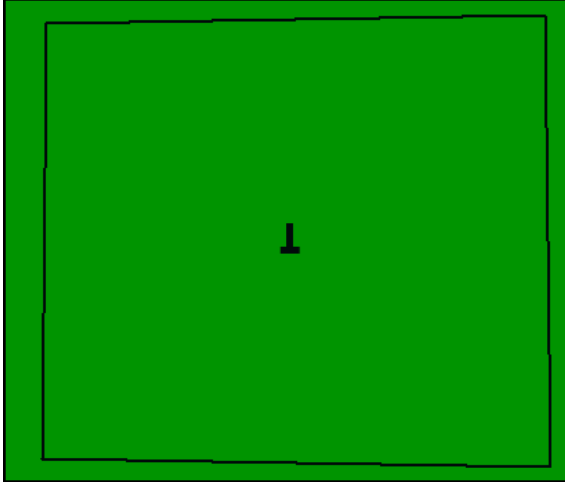
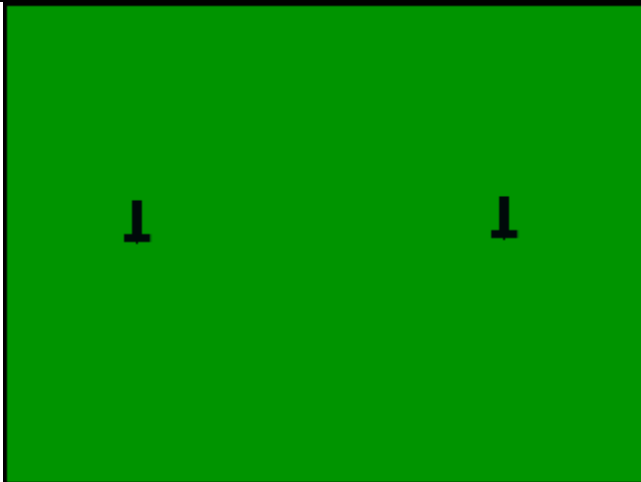
Screen Capture					
Expected Test Results	T1506: 5 errors “Object with height value not split at boundary of M_VDAT object” must be triggered.				
Secondary Errors	T0513: An additional error “An attribute value given on a meta object is duplicated on a geo object” must be triggered.				
Dataset Name	AA500013	S-58 test No.	T1507	Type	E
S-58 Description	For each object of type M_VDAT which OVERLAPS another object of type M_VDAT.				
Message	M_VDAT objects overlap.				
Solution	Edit M_VDAT objects so that they do not overlap.	Conformity	2.1.2		
Test Case No. 1	Overlapping M_VDAT objects.				
Location	32°29'02.21"S 60°51'18.76"E	S57 Encoding	M_VDAT (A) M_VDAT (A)	VERDAT=12 VERDAT=16	
Screen Capture					
Expected Test Results	T1507:2 errors “M_VDAT objects overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1508	Type	E

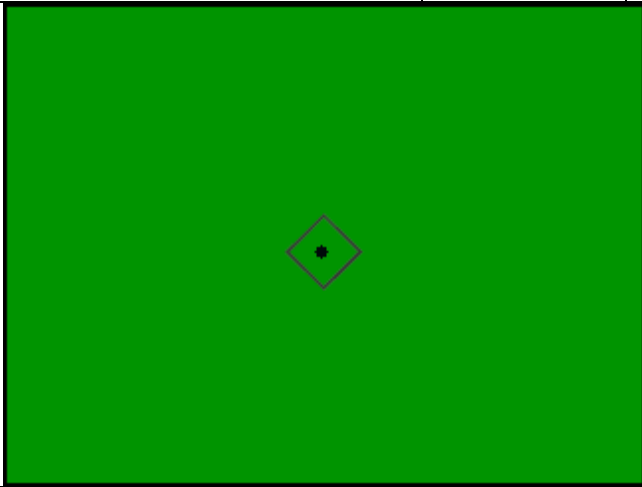
S-58 Description	For each object of type M_SDAT which OVERLAPS another object of type M_SDAT.				
Message	M_SDAT objects overlap.				
Solution	Edit M_SDAT objects so that they do not overlap.	Conformity	2.1.3		
Test Case No. 1	SOUNDG datum areas overlapping.				
Location	32°29'23.65"S 60°52'01.12"E	S57 Encoding	M_SDAT (A) M_SDAT (A)	VERDAT=27 VERDAT=12	
Screen Capture					
Expected Test Results	T1508: 2 errors “M_SDAT objects overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1511	Type	E
S-58 Description	For each M_SDAT object where VERDAT is equal to the value of SDAT (Sounding Datum subfield) of the DSPM (Data Set Parameter field).				
Message	M_SDAT object has the same VERDAT as in the SDAT subfield of the DSPM.				
Solution	Delete M_SDAT object or amend value of VERDAT.	Conformity	2.1.3		
Test Case No. 1	SOUNDG datum area with VERDAT attribution.				
Location	32°29'23.37"S 60°52'02.04"E	S57 Encoding	M_SDAT (A)	VERDAT=12	
Screen Capture					

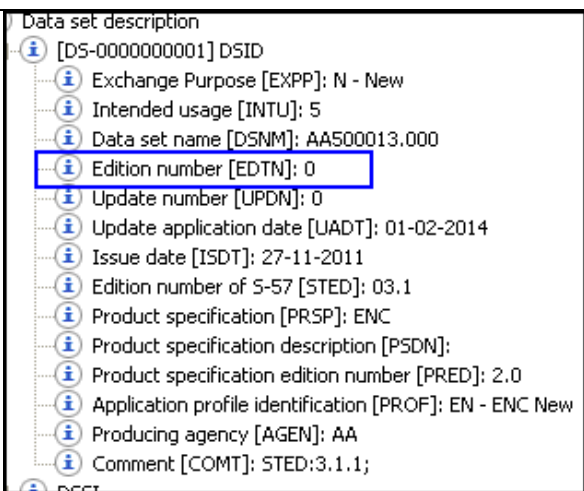
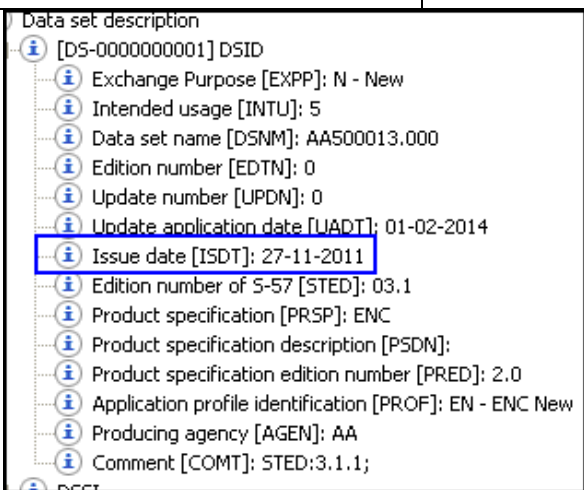
Expected Test Results	T1511: An error “M_SDAT object has the same VERDAT as in the SDAT subfield of the DSPM” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1512a	Type	E
S-58 Description	For each object of type SOUNDG which OVERLAPS more than one M_SDAT object.				
Message	SOUNDG object overlaps multiple M_SDAT objects.				
Solution	Split SOUNDG object at boundary of M_SDAT objects.	Conformity	2.1.3		
Test Case No. 1	SOUNDG crossing over M_SDAT (A) boundary.				
Location	32°29'24.31"S 60°52'00.13"E	S57 Encoding	SOUNDG (P)		
Screen Capture					
Expected Test Results	T1512a: An error “SOUNDG object overlaps multiple M_SDAT objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1512b	Type	E
S-58 Description	For each object of where any of VALSOU, VALDCO, WATLEV, EXPSOU, DRVAL1 or DRVAL2 is not Null AND which OVERLAPS more than one M_SDAT object.				
Message	Object with depth information overlaps multiple M_SDAT objects.				
Solution	Split object at boundary of M_SDAT objects.	Conformity	2.1.3		
Test Case No. 1	SOUNDG, DEPART (A), DEPCNT (L) and OBSTRN (A) crossing M_SDAT (A) boundary.				
Location	32°29'23.88"S 60°51'59.98"E	S57 Encoding	DEPART (A) DEPCNT (L) OBSTRN (A)	DRVAL1=0 DRVAL2=1.8 VALDCO=0 VALSOU=11 EXPSOU=3 WATLEV=3	

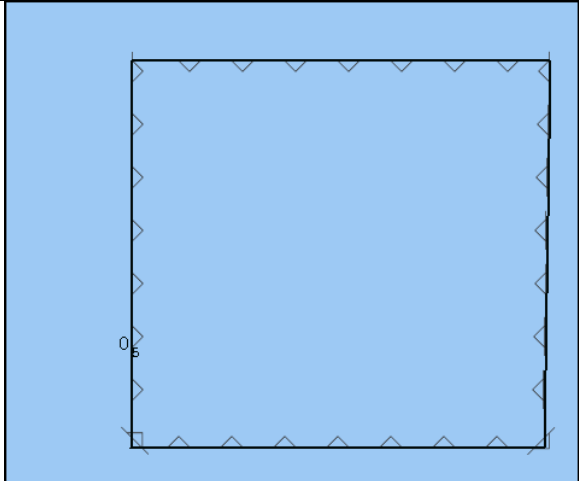
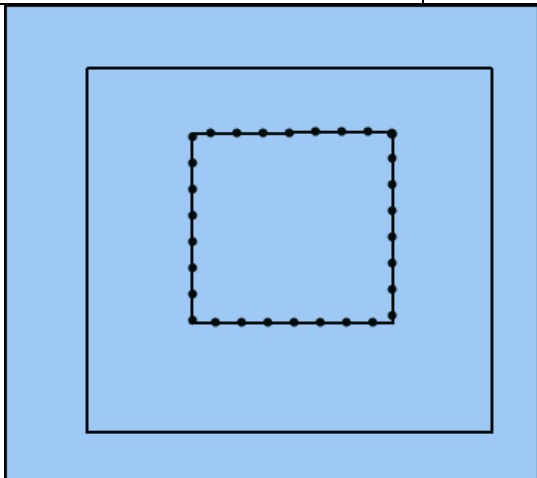
Screen Capture					
Expected Test Results	T1512b: 3 errors “Object with depth information overlaps multiple M_SDAT objects” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1513	Type	C
S-58 Description	If the value of the HUNI (Units of Height measurement subfield) of the DSPM (Data Set Parameter field) is not equal to (1) [metres].				
Message	Units of Height measurement subfield is not set to (1) [metres].				
Solution	Set Units of Height measurement to (1) [metres].		Conformity	2.1.4	
Test Case No. 1	Data Set Parameter field (DSPM)HUNI = feet(2)				
Location	DSPM Parameters				
Screen Capture					
Expected Test Results	T1513: An error “Units of Height measurement subfield is not set to (1) [metres].” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1515a	Type	C
S-58 Description	For each object where a value of DATEND, DATSTA, PEREND, PERSTA, does not conform to the formatting defined in ISO 8601:1988.				

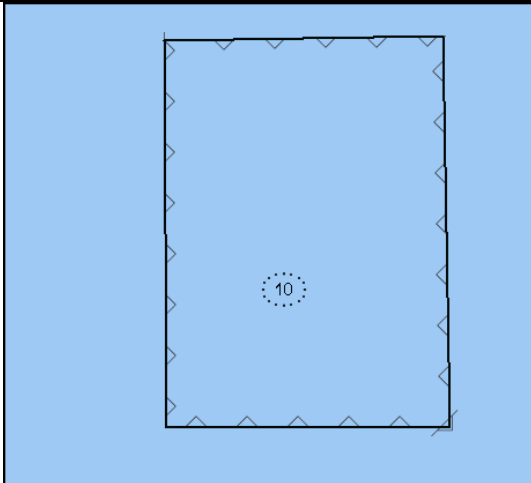
Message	Date attribute not formatted according to ISO 8601:1988.				
Solution	Amend formatting to conform to ISO 8601:1988.		Conformity	2.1.5	
Test Case No. 1	2 BCNLAT (P) objects with attributes encoded.				
Location	32°29'23.21"S 60°52'02.69"E	S57 Encoding	BCNLAT (P) BCNLAT (P)	PERSTA=--3101 PEREND=--3107 DATSTA=25062010 DATEND=25122010	
Screen Capture					
Expected Test Results	T1515a: 2 errors “Date attribute not formatted according to ISO 8601:1988” must be triggered.				
Secondary Errors	T0073: 3 additional warnings “Check that Periodic Date, End (PEREND) does not contain a leading or a trailing space. Check that the format of the attribute is valid” must be triggered.				
Dataset Name	AA500013	S-58 test No.	T1515b	Type	E
S-58 Description	For each object where a value of SORDAT, CPDATE, SUREND or SURSTA does not conform to the formatting defined in ISO 8601:1988.				
Message	Date attribute not formatted according to ISO 8601:1988.				
Solution	Amend formatting to conform to ISO 8601:1988.		Conformity	2.1.5	
Test Case No. 1	BCNLAT (P) with attributes encoded. M_QUAL (A) with attributes encoded.				
Location	32°29'23.83"S 60°52'03.89"E	S57 Encoding	BCNLAT (P) M_QUAL (A)	SORDAT=11112012 SURSTA=25252011 SUREND=25252010	

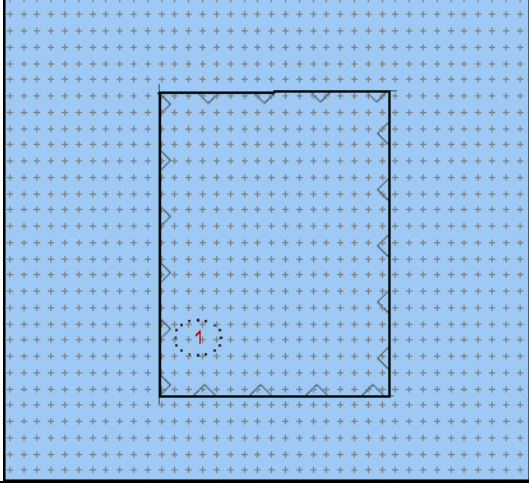
Screen Capture					
Expected Test Results	T1515b: 2 errors “Date attribute not formatted according to ISO 8601:1988” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1516	Type	W
S-58 Description	For each Group 2 object having STATUS, PERSTA and PEREND allowable where STATUS equals (5) [periodic/intermittent] AND PERSTA or PEREND are null or not present.				
Message	PERSTA or PEREND not populated where STATUS equals 5.				
Solution	Populate PERSTA or PEREND with values or remove STATUS (5) [periodic/intermittent].		Conformity	2.1.5.1	
Test Case No. 1	BCNLAT (P) with attribute STATUS encoded. BCNLAT (P) with attributes PERSTA & PEREND encoded.				
Location	32°29'24.12"S 60°52'02.71"E	S57 Encoding	BCNLAT (P) BCNLAT (P)	STATUS=5 PERSTA=30.06.-- PEREND=01.01--	
Screen Capture					
Expected Test Results	T1516: 2 warnings “PERSTA or PEREND not populated where STATUS equals 5” must be triggered.				
Secondary Errors	T0073a: An additional warning “Attribute value contains leading or trailing spaces” must be triggered.				
Dataset Name	AA500013	S-58 test No.	T1517	Type	E

S-58 Description	For each object where TIMSTA OR TIMEND is not Null AND their values do not conform to the format defined in Chapter 2 of S-57 Appendix A.				
Message	TIMEND or TIMSTA are not formatted correctly.				
Solution	Correct the formatting of TIMEND or TIMSTA.	Conformity	2.1.6		
Test Case No. 1	TS_TIS (P) with TIMSTA & TIMEND attributes encoded.				
Location	32°29'23.68"S 60°52'02.38"E	S57 Encoding	TS_TIS (P)	TIMSTA=210708T20120629 TIMEND=210701T20120630	
Screen Capture					
Expected Test Results	T1517: An error “TIMEND or TIMSTA are not formatted correctly” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1014	Type	C
S-58 Description	If the value of the EDTN (Edition Number) subfield of the DSID (Data Set Identification) field is incorrect.				
Message	Incorrect value of Edition Number.				
Solution	Correct Edition Number.	Conformity	2.2.2		
Test Case No. 1	Data Set Identification field (DSID) with EDTN = 0				
Location	DSID Parameters	S57 Encoding			

Screen Capture					
Expected Test Results	T1014: An error "Incorrect value of Edition Number" must be triggered.				
Secondary Errors	T0534: An additional error "Incorrect delete cell message" must be triggered.				
Dataset Name	AA500013	S-58 test No.	T1523b	Type	C
S-58 Description	If the data set file name extension equals ".000" AND the ISDT (Issue date) subfield of the DSID (Data Set Identification) field is less than the value of the UADT (Update application date) subfield.				
Message	For a base data set the update application date falls before the issue date.				
Solution	Amend update application date or issue date accordingly.		Conformity	2.2.2	
Test Case No. 1	Data Set Identification (DSID) with ISDT=27-11-2011; which is less than the value of the Update application date (UADT) subfield.				
Location	DSID Parameters	S57 Encoding			
Screen Capture					
Expected Test Results	T1523b: An error "For a base data set the update application date falls before the issue date" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1525	Type	E

S-58 Description	For each M_QUAL object where POSACC is not Null AND DRVAL1 is not Null.				
Message	M_QUAL object where DRVAL1 and POSACC are populated.				
Solution	Amend attribute values accordingly.	Conformity	2.2.3.1		
Test Case No. 1	M_QUAL with DRVAL1 & POSACC attribution encoded.				
Location	32°29'24.06"S 60°51'58.85"E	S57 Encoding	M_QUAL (A)	DRVAL1=1 POSACC=10	
Screen Capture					
Expected Test Results	T1525: An error “M_QUAL object where DRVAL1 and POSACC are populated” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1529	Type	E
S-58 Description	For each object WITHIN an M_QUAL object where TECSOU is not Null AND the value of TECSOU is equivalent to the TECSOU on the M_QUAL object.				
Message	TECSOU value on object is equivalent to value used on the M_QUAL it lies WITHIN.				
Solution	Remove unnecessary value of TECSOU.	Conformity	2.2.3.1 and 2.2.3.5		
Test Case No. 1	OBSTRN (A) with attribution for TECSOU. M_QUAL (A) without attribution for TECSOU.				
Location	32°29'24.37"S 60°51'58.34"E	S57 Encoding	M_QUAL (A) OBSTRN (A)	TECSOU=6	
Screen Capture					

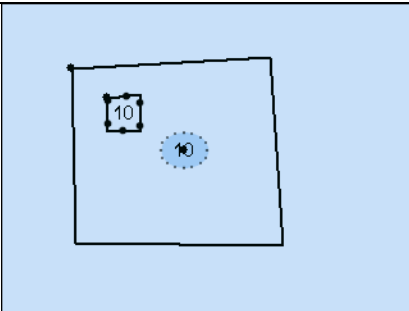
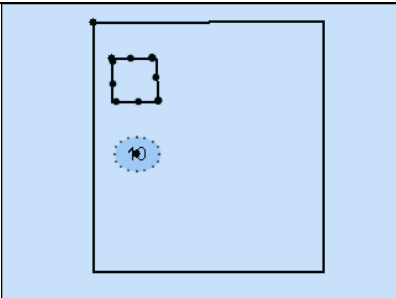
Expected Test Results	T1529: An error “TECSOU value on object is equivalent to value used on the M_QUAL it lies WITHIN” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500013	S-58 test No.	T1535	Type	E
S-58 Description	For each UWTROC object where SOUACC is not Null AND it is identical to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.				
Message	SOUACC on UWTROC matches or degrades that on the underlying M_QUAL object.				
Solution	Delete or amend SOUACC on M_QUAL.		Conformity	2.2.3.1	
Test Case No. 1	UWTROC attributed with SOUACC within a M_QUAL attributed with an equivalent SOUACC.				
Location	32°29'24.46"S 60°51'58.91"E	S57 Encoding	M_QUAL (A) UWTROC (P)	SOUACC=2 SOUACC=2 VALSOU=10	
Screen Capture					
Expected Test Results	T1535: An error “SOUACC on UWTROC matches or degrades that on the underlying M_QUAL object” must be triggered.				
Secondary Errors	T1530: An additional error “SOUACC value on object is equivalent to value used on the M_QUAL it lies WITHIN” must be triggered.				
Test Case No. 2	UWTROC attributed with SOUACC within a M_QUAL attributed with a different SOUACC.				
Location	32°29'24.45"S 60°51'59.07"E	S57 Encoding	M_QUAL (A) UWTROC (P)	SOUACC=0.6 CATZOC=5 SOUACC=1	

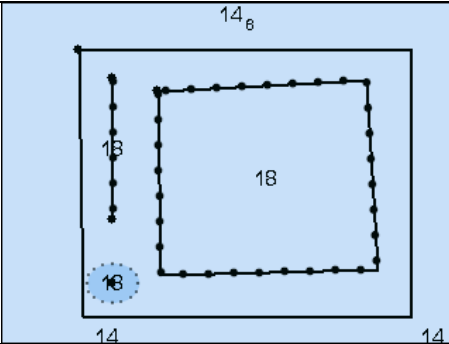
<p>Screen Capture</p>	
<p>Expected Test Results</p>	<p>T1535: An error "SOUACC on UWTROC matches or degrades that on the underlying M_QUAL object" must be triggered.</p>
<p>Secondary Errors</p>	<p>None</p>

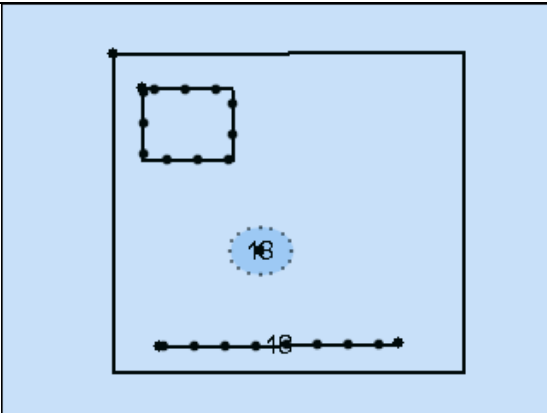
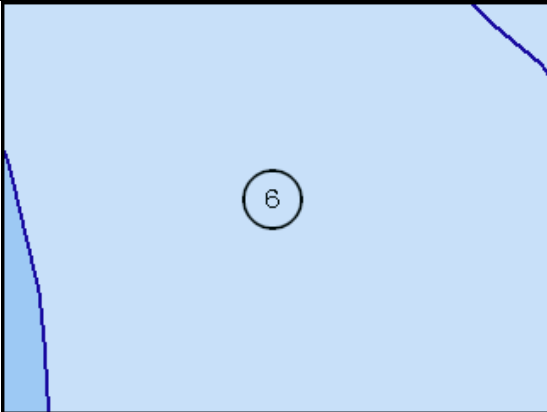
2.14. Test Dataset: AA500014

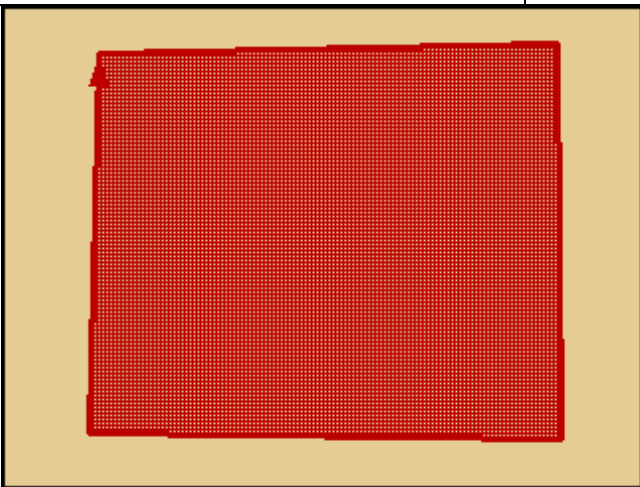
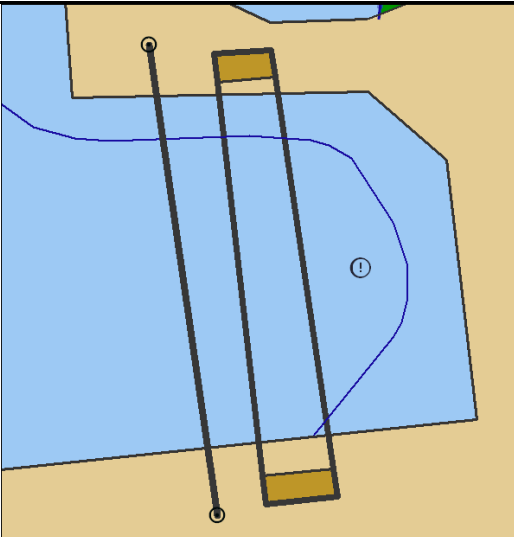
List of S-58 Recommended ENC Validation Checks covered in this section:

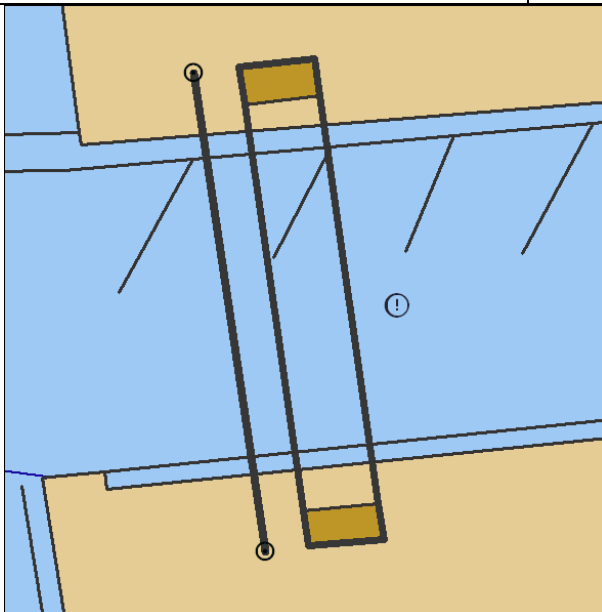
S-58 Test	Description
1537	For each WRECKS object where SOUACC is not Null AND is equivalent to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.
1539	For each OBSTRN object where SOUACC is not Null AND it is equal to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.
1541	For each single sounding WITHIN an M_SREL object where the value of QUASOU of the SOUNDG object is identical to the value of QUASOU on the M_SREL object it lies WITHIN.
1544	For each M_ACCY object where HORACC, SOUACC or VERACC are present.
1545	For each object where HORACC is not Null AND HORCLR is NULL or not present.
1546	For each object where VERACC is not Null AND VERCLR, VERCOP, VERCSA VERCCL are all NULL or not present.
1548	For each object which is not of type SOUNDG, DEPCNT, DEPCARE, DRGARE, OBSTRN where SORIND is not Null and SORDAT is NULL or not present.
1550	For each M_CSCL object where CSCALE is equal to the value of CSCL (Compilation scale of data) subfield in the DPSM (Data Set Parameter) field.
1551	For each M_CSCL object which OVERLAPS another M_CSCL object.
1553	For each value of SCAMIN which is less than or equal to the compilation scale of the data for the area.
1554a	For each Group 1 object where SCAMIN is present.
1554b	For each meta object where SCAMIN is present.
1557	For each T_HMON object where T_MTOD does not equal (1) [simplified harmonic method of tidal prediction] or (2) [full harmonic method of tidal prediction].
1558	For each T_NHMON object where T_MTOD does not equal (3) [time and height difference non-harmonic method].
1560	For each TS_PRH object where T_MTOD is not equal to (1) [simplified harmonic method of tidal prediction] OR (2) [full harmonic method of tidal prediction].
1561	For each TS_PNH object where T_MTOD does not equal (3) (time and height difference non-harmonic method).
1563	For each RIVERS, CANALS, LAKARE, DOCARE or LOKBSN object which is not WITHIN a LNDARE or UNSARE object of type area.
1564	For each CTRPNT object where VERDAT or VERACC are present.
1567	For each COALNE object where VERDAT or VERACC are present.

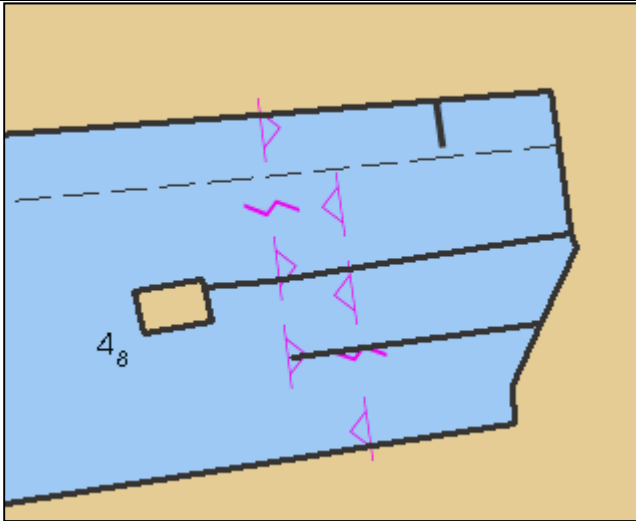
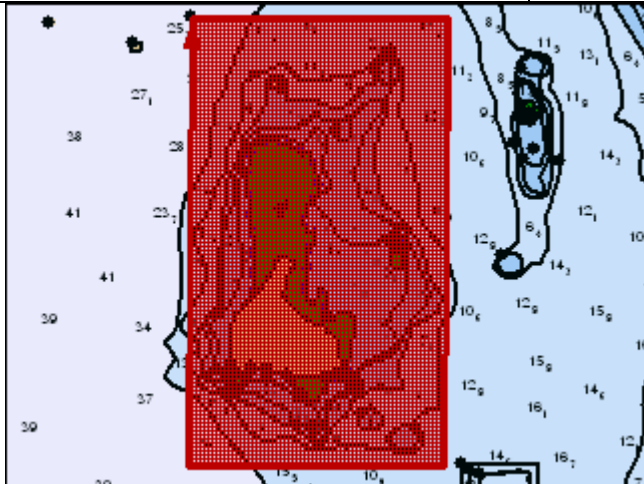
Dataset Name	AA500014	S-58 test No.	T1537	Type	E
S-58 Description	For each WRECKS object where SOUACC is not Null AND is equivalent to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.				
Message	SOUACC on WRECKS is equivalent to or degrades the value of SOUACC on the underlying M_QUAL object.				
Solution	Amend SOUACC on M_QUAL or WRECKS as appropriate.		Conformity	2.2.3.1	
Test Case No. 1	WRECKS (A, P) SWPARE (A) and M_QUAL objects with SOUACC attribution encoded.				
Location	32°29'14.87"S 60°47'35.78"E	S57 Encoding	WRECKS (A, P) SWPARE (A) M_QUAL (A)	CATWRK=2 SOUACC=1 WATLEV=3 QUASOU=6 VALSOU=10 DRVAL1=10 CATZOC=5 SOUACC=2 DRVAL1=10	
Screen Capture					
Expected Test Results	T1537: 2 errors “SOUACC on WRECKS is equivalent to or degrades the value of SOUACC on the underlying M_QUAL object” must be triggered.				
Secondary Errors	T1655: An additional error “POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object” must be triggered.				
Test Case No. 2	WRECKS (A, P) SWPARE (A) and M_QUAL objects with SOUACC attribution encoded.				
Location	32°29'14.89"S 60°47'40.75"E	S57 Encoding	WRECKS (A, P) SWPARE (A) M_QUAL (A)	CATWRK=2 SOUACC=0.5 WATLEV=3 QUASOU=6 VALSOU=10 DRVAL1=10 CATZOC=5 SOUACC=1 DRVAL1=10	
Screen Capture					
Expected Test Results	T1537: 2 errors “SOUACC on WRECKS is equivalent to or degrades the value of SOUACC on the underlying M_QUAL object” must be triggered.				

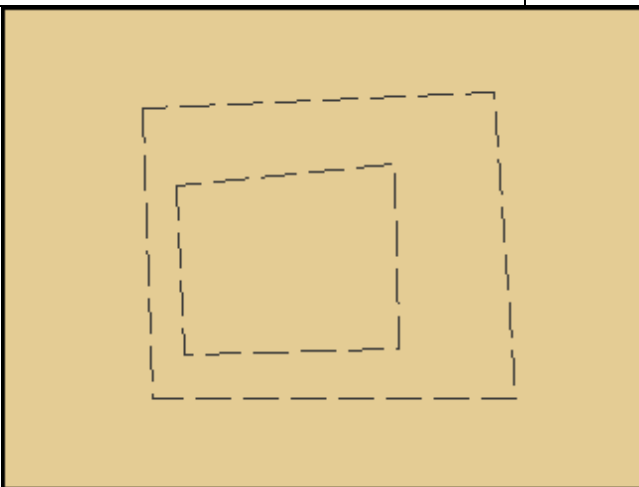
Secondary Errors	T1655: An additional error “POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1539	Type	E
S-58 Description	For each OBSTRN object where SOUACC is not Null AND it is equal to or degrades the value of SOUACC on the M_QUAL object it is WITHIN.				
Message	SOUACC on OBSTRN matches or degrades that on the underlying M_QUAL object.				
Solution	Delete or amend SOUACC on M_QUAL.		Conformity	2.2.3.1	
Test Case No. 1	OBSTRN (A), SWPARE (A) and M_QUAL objects with SOUACC attribution encoded.				
Location	32°29'13.66"S 60°47'56.18"E	S57 Encoding	OBSTRN (A, L, P) SWPARE (A) M_QUAL (A)	WATLEV=3 VALSOU=10 QUASOU=6 SOUACC=1 DRVAL1=10 CATZOC=5 SOUACC=2 DRVAL1=10	
Screen Capture					
Expected Test Results	T1539: 3 errors “SOUACC on OBSTRN matches or degrades that on the underlying M_QUAL object.” must be triggered.				
Secondary Errors	T1655: An additional error “POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object” must be triggered.				
Test Case No. 2	OBSTRN (A, L, P) and M_QUAL objects with SOUACC attribution encoded.				
Location	32°29'15.53"S 60°47'48.28"E	S57 Encoding	OBSTRN (A, L, P) SWPARE (A) M_QUAL (A)	WATLEV=3 VALSOU=10 QUASOU=6 SOUACC=0.5 DRVAL1=10 CATZOC=5 SOUACC=1 DRVAL1=10	

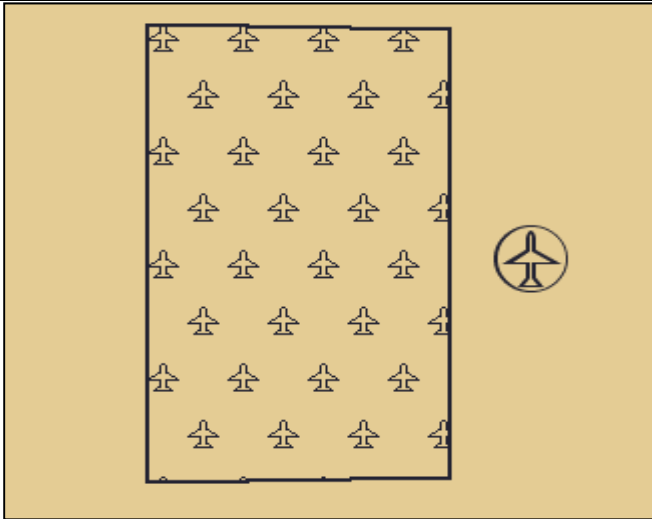
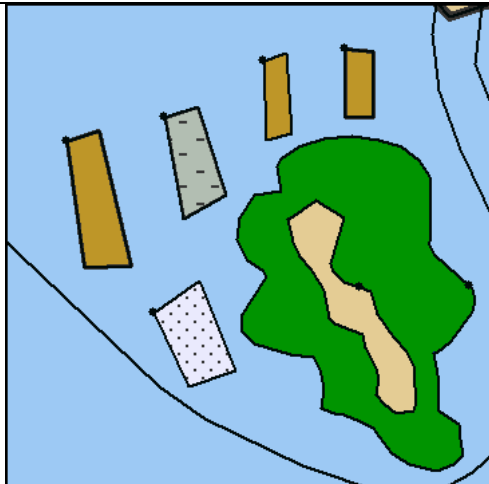
Screen Capture					
Expected Test Results	T1539: 3 errors "SOUACC on OBSTRN matches or degrades that on the underlying M_QUAL object" must be triggered.				
Secondary Errors	T1655: An additional error "POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object" must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1541	Type	E
S-58 Description	For each single sounding WITHIN an M_SREL object where the value of QUASOU of the SOUNDG object is identical to the value of QUASOU on the M_SREL object it lies WITHIN.				
Message	QUASOU on SOUNDG equal to that on the underlying M_SREL object.				
Solution	Remove unnecessary value.		Conformity	2.2.3.3	
Test Case No.1	SOUNDG and M_SREL with identical QUASOU attribution.				
Location	32°28'05.46"S 60°46'33.46"E	S57 Encoding	SOUNDG (P) M_SREL (A)	QUASOU=8 QUASOU=8	
Screen Capture					
Expected Test Results	T1541: An error "QUASOU on SOUNDG equal to that on the underlying M_SREL object" must be triggered.				
Secondary Errors	T0513: An additional error "An attribute value given on a meta object is duplicated on a geo object" must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1544	Type	E
S-58 Description	For each M_ACCY object where HORACC, SOUACC or VERACC are present.				
Message	M_ACCY object includes HORACC, SOUACC or VERACC.				
Solution	Remove attribute values.		Conformity	2.2.4.1	

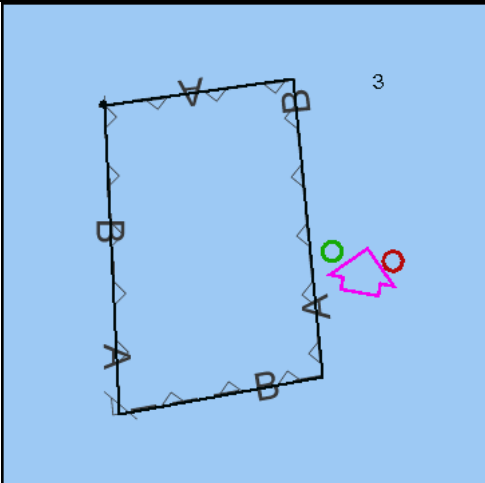
Test Case No.1	M_ACCY with attributes HORACC, SOUACC and VERACC encoded.				
Location	32°29'12.53"S 60°49'03.38"E	S57 Encoding	M_ACCY (A)	HORACC=1 SOUACC=1 VERACC=1 POSSAC=1	
Screen Capture					
Expected Test Results	T1544: 3 errors “M_ACCY object includes HORACC, SOUACC or VERACC” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1545	Type	E
S-58 Description	For each object where HORACC is not Null AND HORCLR is NULL or not present.				
Message	Value for HORACC without a value of HORCLR.				
Solution	Add HORCLR value or remove HORACC.		Conformity	2.2.4.2	
Test Case No.1	BRIDGE (L, P) with HORACC attribution encoded and without an attribute value for HORCLR.				
Location	32°29'14.81"S 60°48'38.94"E	S57 Encoding	BRIDGE (A, L, P) PYLONS (A, P)	CATBRG=1 HORACC=10 CATPYL=4	
Screen Capture					
Expected Test Results	T1545: 3 errors “Value for HORACC without a value of HORCLR” must be triggered.				

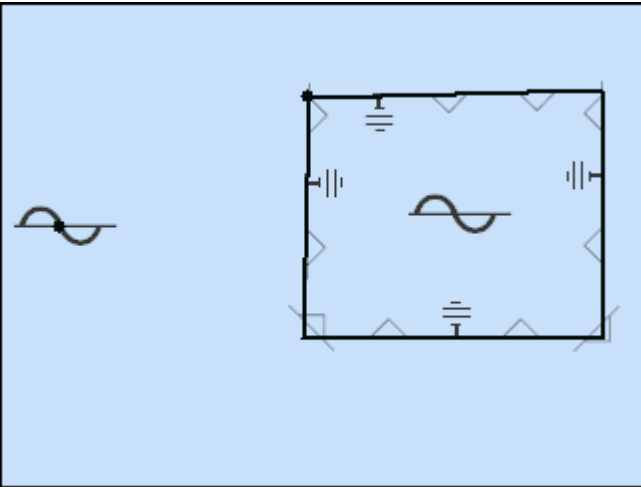
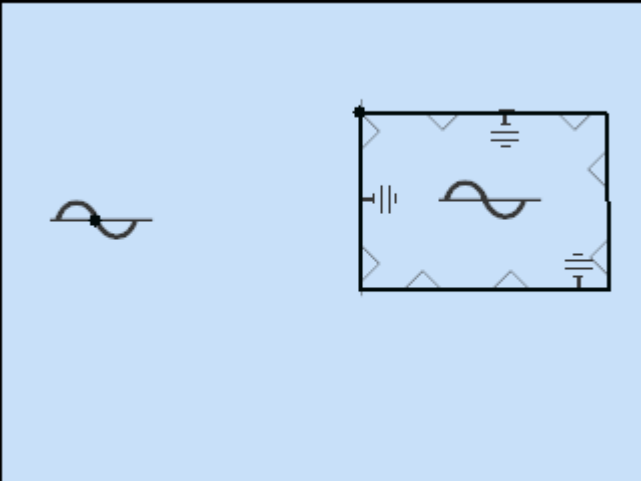
Secondary Errors		T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.			
Dataset Name	AA500014	S-58 test No.	T1546	Type	E
S-58 Description	For each object where VERACC is not Null AND VERCLR, VERCOP, VERCSA VERCCL are all NULL or not present.				
Message	Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL.				
Solution	Remove VERACC of populate vertical clearance value.	Conformity	2.2.4.3		
Test Case No.1	BRIDGE (L, P) with VERACC attribution encoded and without a corresponding attribute value for at least one of: VERCLR, VERCOP, VERCSA or VERCCL.				
Location	32°29'17.70"S 60°48'36.76"E	S57 Encoding	BRIDGE (A, L, P) PYLONS (A, P)	CATBRG=1 VERACC=10 CATPYL=4	
Screen Capture					
Expected Test Results	T1546: 3 errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1548	Type	W
S-58 Description	For each object which is not of type SOUNDG, DEPCNT, DEPCNT, DRGARE, OBSTRN where SORIND is not Null and SORDAT is NULL or not present.				
Message	Value of SORIND without a value of SORDAT on non-bathymetric object.				
Solution	Populate SORDAT with an appropriate value.	Conformity	2.2.5.2		
Test Case No.1	CBLARE (A) with attribution encoded for SORIND without an attribute value for SORDAT.				
Location	32°29'21.68"S 60°48'39.72"E	S57 Encoding	CBLARE (A)	CATCBL=1 SORIND=AA,AA,g raph,chart0014	

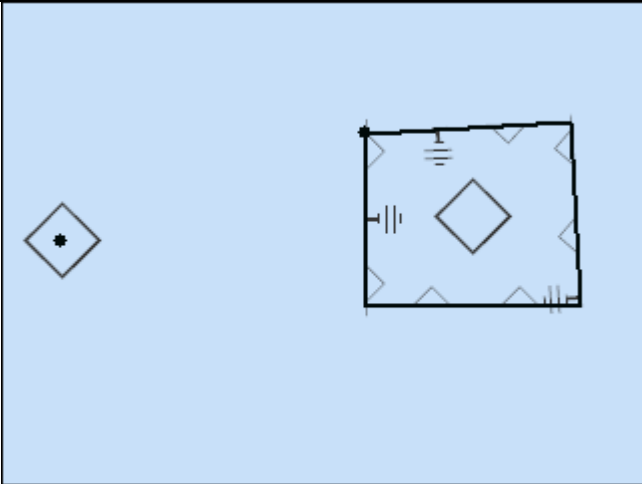
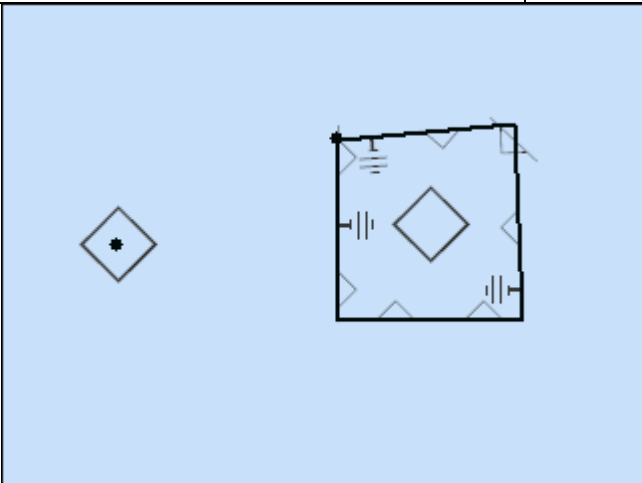
Screen Capture						
Expected Test Results	T1548: 3 warnings "Value of SORIND without a value of SORDAT on non-bathymetric object" must be triggered.					
Secondary Errors	None					
Dataset Name	AA500014	S-58 test No.	T1550	Type	E	
S-58 Description	For each M_CSCL object where CSCALE is equal to the value of CSCL (Compilation scale of data) subfield in the DPSM (Data Set Parameter) field.					
Message	CSCALE of M_CSCL is identical to the value given as the Compilation scale of the dataset.					
Solution	Remove unnecessary M_CSCL object.			Conformity	2.2.6	
Test Case No.1	M_CSCL (A) where CSCALE attribution is equal to the compilation scale subfield of the Data Set Parameter.					
Location	32°28'46.54"S 60°47'33.94"E	S57 Encoding	M_CSCL (A)	CSCALE=20000		
Screen Capture						
Expected Test Results	T1550: An error "CSCALE of M_CSCL is identical to the value given as the Compilation scale of the dataset" must be triggered.					
Secondary Errors	T0513: An additional error "An attribute value given on a meta object is duplicated on a geo object" must be triggered.					
Dataset Name	AA500014	S-58 test No.	T1551	Type	E	

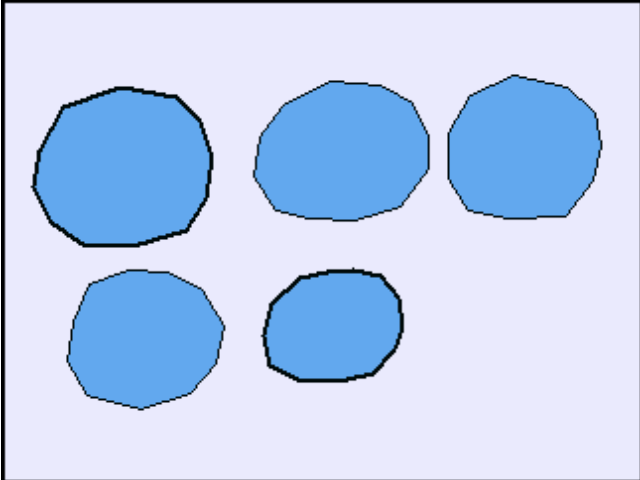
S-58 Description	For each M_CSCL object which OVERLAPS another M_CSCL object.				
Message	M_CSCL object overlap.				
Solution	Amend M_CSCL objects so that they do not overlap.	Conformity	2.2.6		
Test Case No.1	M_CSCL objects with differing compilation scales are overlapping.				
Location	32°28'32.43"S 60°48'59.49"E	S57 Encoding	M_CSCL (A) M_CSCL (A)	CSCALE=25000 CSCALE=30000	
Screen Capture					
Expected Test Results	T1551: 2 errors “M_CSCL object overlap” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500014	S-58 test No.	T1553	Type	E
S-58 Description	For each value of SCAMIN which is less than or equal to the compilation scale of the data for the area.				
Message	SCAMIN value less than compilation scale.				
Solution	Amend SCAMIN value accordingly.	Conformity	2.2.6 and 2.2.7		
Test Case No.1	AIRARE (A, P) SCAMIN attribution is less than or equal to the compilation scale.				
Location	32°27'56.67"S 60°48'56.00"E	S57 Encoding	AIRARE (A, P)	SCAMIN=10000	

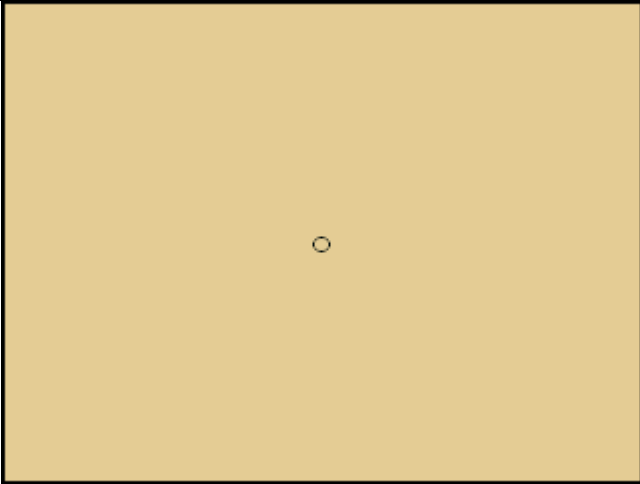
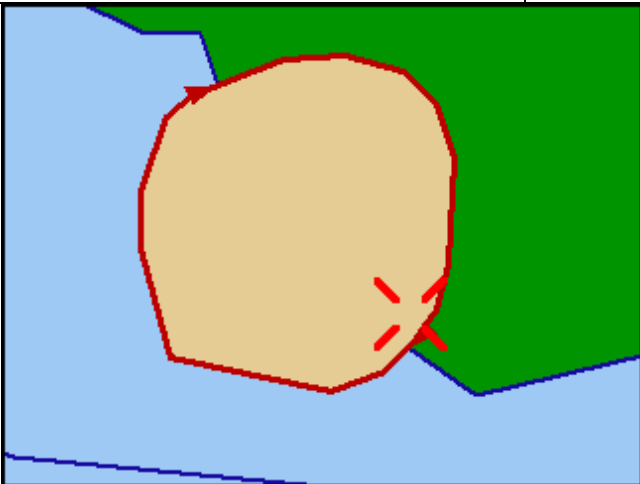
Screen Capture					
Expected Test Results	T1553: 2 errors “SCAMIN value less than compilation scale” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500014	S-58 test No.	T1554a	Type	C
S-58 Description	For each Group 1 object where SCAMIN is present.				
Message	SCAMIN present on a Group 1 object.				
Solution	Remove SCAMIN.		Conformity	2.2.7	
Test Case No.1	SCAMIN attribution assigned to 7 Group 1 objects.				
Location	32°28'34.91"S 60°48'25.59"E	S57 Encoding	DEPARE (A) LNDARE (A) UNSARE (A) FLODOC (A) PONTON (A) HULKES (A) DRGARE (A)	SCAMIN=25000	
Screen Capture					
Expected Test Results	T1554a: 7 errors “SCAMIN present on a Group 1 object” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				

Dataset Name	AA500014	S-58 test No.	T1554b	Type	C
S-58 Description	For each meta object where SCAMIN is present.				
Message	SCAMIN present on a meta object.				
Solution	Remove SCAMIN.	Conformity	2.2.7		
Test Case No.1	SCAMIN attribution assigned for meta object.				
Location	32°28'35.53"S 60°48'19.80"E	S57 Encoding	M_NSYS	MARSYS=2 ORIENT=10 SCAMIN=25000	
Screen Capture					
Expected Test Results	T1554b: An error “SCAMIN present on a meta object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1557	Type	E
S-58 Description	For each T_HMON object where T_MTOD does not equal (1) [simplified harmonic method of tidal prediction] or (2) [full harmonic method of tidal prediction].				
Message	T_HMON object where the value of T_MTOD is not (1) or (2).				
Solution	Amend T_MTOD to valid value.	Conformity	3.2.2		
Test Case No.1	T_HMON (A, P) with T_MTOD attribution.				
Location	32°27'37.14"S 60°47'57.01"E	S57 Encoding	T_HMON (A, P)	T_MTOD=3	

Screen Capture					
Expected Test Results	T1557: 2 errors “T_HMON object where the value of T_MTOD is not (1) or (2)” must be triggered.				
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1558	Type	E
S-58 Description	For each T_NHNM object where T_MTOD does not equal (3) [time and height difference non-harmonic method].				
Message	T_NHNM object where the value of T_MTOD is not (3).				
Solution	Amend T_MTOD to a valid value.		Conformity	3.2.3	
Test Case No.1	T_NHNM (A, P) with T_MTOD attribution.				
Location	32°27'43.98"S 60°47'52.54"E	S57 Encoding	T_NHNM (A, P)	T_MTOD=1	
Screen Capture					
Expected Test Results	T1558: 2 errors “T_NHNM object where the value of T_MTOD is not (3)” must be triggered.				
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1560	Type	E
S-58 Description	For each TS_PRH object where T_MTOD is not equal to (1) [simplified harmonic method of tidal prediction] OR (2) [full harmonic method of tidal prediction].				
Message	TS_PRH object has a value other than (1) or (2) for T_MTOD.				

Solution	Amend T_MTOD (A, P) to a valid value.			Conformity	3.3.3	
Test Case No.1	TS_PRH with T_MTOD attribution.					
Location	32°27'51.80"S 60°47'52.06"E	S57 Encoding	TS_PRH (A, P)	T_MTOD=3		
Screen Capture						
Expected Test Results	T1560: 2 errors “TS_PRH object has a value other than (1) or (2) for T_MTOD” must be triggered.					
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.					
Dataset Name	AA500014	S-58 test No.	T1561	Type	E	
S-58 Description	For each TS_PNH object where T_MTOD does not equal (3) (time and height difference non-harmonic method).					
Message	For TS_PNH T_MTOD is not (3) (time and height difference non-harmonic method).					
Solution	Amend T_MTOD to (3).			Conformity	3.3.4	
Test Case No.1	TS_PNH (A, P) with T_MTOD attribution.					
Location	32°28'02.10"S 60°47'56.41"E	S57 Encoding	TS_PNH (A, P)	T_MTOD=1		
Screen Capture						
Expected Test Results	T1561: 2 errors “For TS_PNH T_MTOD is not (3) (time and height difference non-harmonic method)” must be triggered.					
Secondary Errors	T2000: 2 additional errors “Attribute value which is not allowed use on an object” must be triggered.					
Dataset Name	AA500014	S-58 test No.	T1563	Type	W	

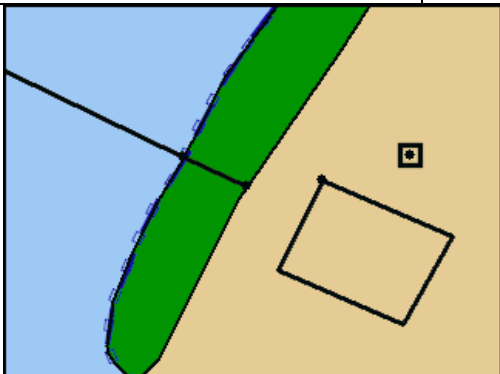
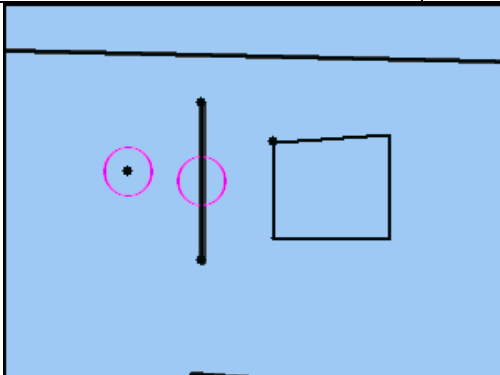
S-58 Description	For each RIVERS, CANALS, LAKARE, DOCARE or LOKBSN object which is not WITHIN a LNDARE or UNSARE object of type area.				
Message	Non navigable water objects not covered by UNSARE or LNDARE.				
Solution	Amend LNDARE Or UNSARE to cover these object types.	Conformity	4.1		
Test Case No.1	RIVERS (A), CANALS (A), LAKARE (A), DOCARE (A) and LOKBSN (A) objects are overlapping DEPAE (A).				
Location	32°29'19.04"S 60°46'52.86"E	S57 Encoding	RIVERS (A) CANALS (A) LAKARE (A) DOCARE (A) LOKBSN (A)		
Screen Capture					
Expected Test Results	T1563: 5 warnings “Non navigable water objects not covered by UNSARE or LNDARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500014	S-58 test No.	T1564	Type	E
S-58 Description	For each CTRPNT object where VERDAT or VERACC are present.				
Message	VERDAT or VERACC present on a CTRPNT object.				
Solution	Remove VERDAT or VERACC.	Conformity	4.3		
Test Case No.1	CTRPNT object with attributes VERDAT and VERACC encoded.				
Location	32°28'49.13"S 60°48'47.10"E	S57 Encoding	CTRPNT (P)	VERDAT=27 VERACC=1 ELEVAT=10	

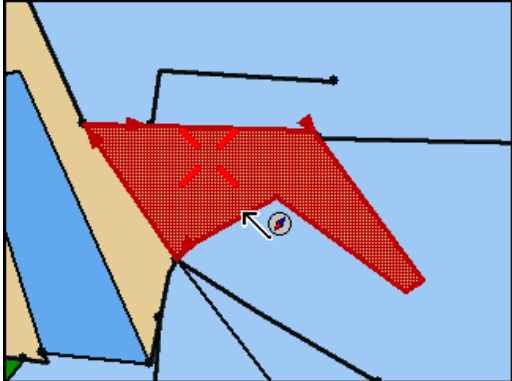

Screen Capture					
Expected Test Results	T1564: 2 errors “VERDAT or VERACC present on a CTRPNT object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500014	S-58 test No.	T1567	Type	E
S-58 Description	For each COALNE object where VERDAT or VERACC are present.				
Message	COALNE object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.		Conformity	4.5.1	
Test Case No.1	COALNE with attribution encoded for VERDAT and VERACC.				
Location	32°29'04.15"S 60°47'32.72"E	S57 Encoding	COALNE (L)	VERDAT=27 VERACC=1 ELEVAT=10	
Screen Capture					
Expected Test Results	T1567: 2 errors “COALNE object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				

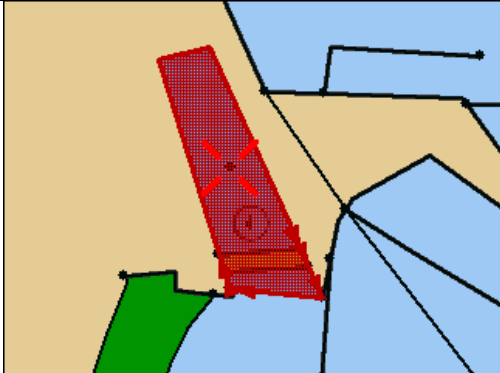
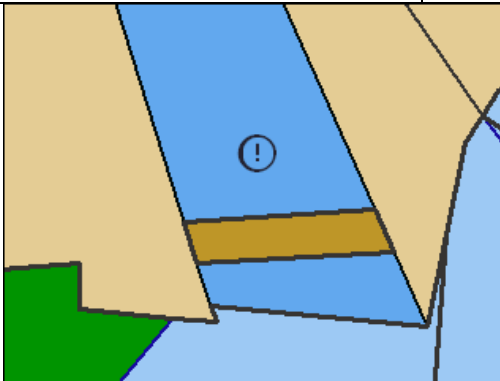
2.15. Test Dataset: AA500015

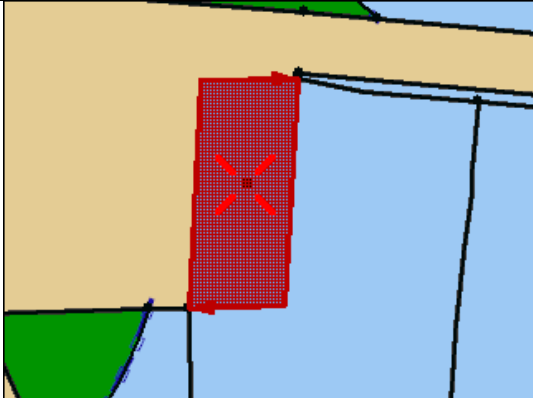
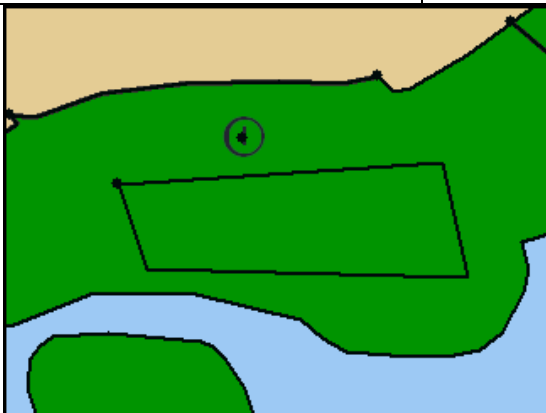
List of S-58 Recommended ENC Validation Checks covered in this section:

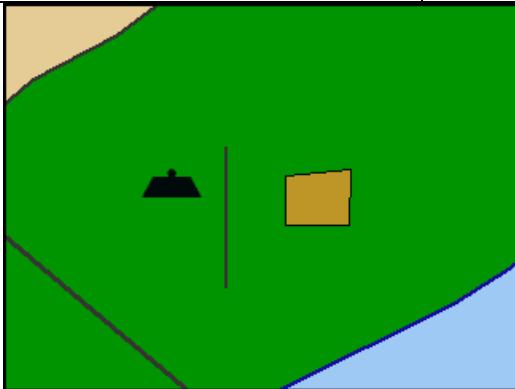
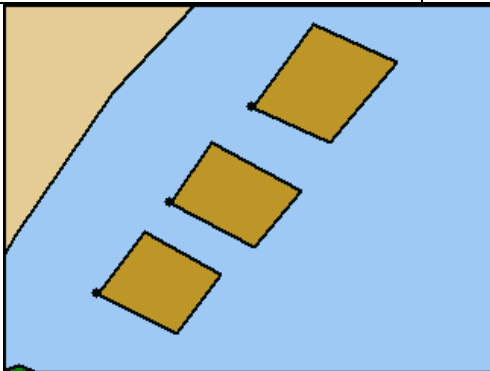
S-58 Test	Description
1570	For each SLCONS object where VERDAT or VERACC are present.
1571	For each BERTHS object where VERDAT is present.
1572	For each DRYDOC object where VERDAT is present.
1575	For each FLODOC object where VERDAT or VERACC are present.
1577	For each DOCARE where its geometric primitive EQUALS a SEAARE object.
1578	For each GATCON object where VERDAT is not Null AND VERCLR is not present.
1581	For each LOKBSN where its geometric primitive EQUALS a SEAARE object.
1582	For each GRIDRN object where HORACC or VERACC are present.
1583	For each MORFAC object where VERDAT or VERACC are present.
1584	For each MORFAC object where WATLEV = 1 [partly submerged at high water] OR 2 [always dry] OR 6 [subject to inundation or flooding] which is not WITHIN a LNDARE object of type area.
1585	For each PILPNT object where VERDAT or VERACC are present.
1586	For each PONTON object where VERACC is present.
1587	For each HULKES object where HORACC OR VERACC are present.
1589	For each object where CONDTN equals (1) [under construction], (3) [under reclamation] or (5) [planned construction] AND SORDAT is null or not present.
1590	For each LNDGRN object which is not OVERLAPPED by a LNDARE object.
1591	For each LNDELV object where VERDAT or VERACC are present.
1592	For each COALNE object which is COINCIDENT with a LNDGRN object where CATLND equals (2) [marsh] AND CATCOA on the COALNE object does not equal (8) [marshy shore] OR QUAPOS does not equal (4) [approximate].
1593	For each SLOGRD object where NATCON OR NATQUA are present.
1594	For each SLOTOP object where NATCON, NATQUA, VERACC OR VERDAT are present.

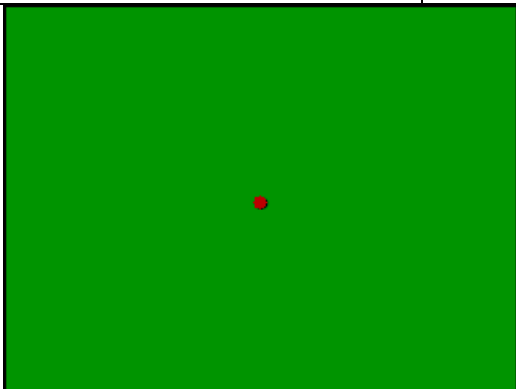
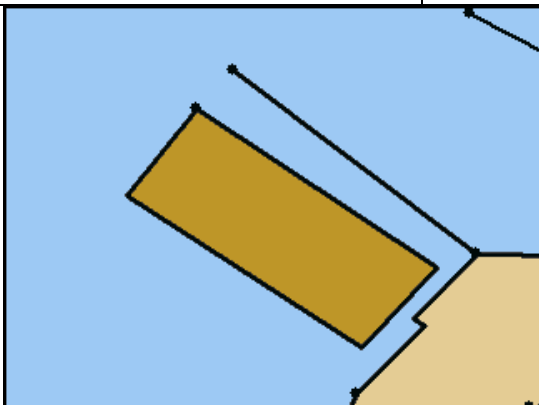
Dataset Name	AA500015	S-58 test No.	T1570	Type	E
S-58 Description	For each SLCONS object where VERDAT or VERACC are present.				
Message	SLCONS object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.	Conformity	4.5.2		
Test Case No. 1	SLCONS (A, L, P) object with attribution encoded for VERDAT and VERACC.				
Location	32°28'57.01"S 60°44'50.90"E	S57 encoding	SLCONS (A, L, P)	VERDAT=3 VERACC=3 HEIGHT=3	
Screen Capture					
Expected Test Results	T1570: 6 errors “SLCONS object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: 3 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1571	Type	E
S-58 Description	For each BERTHS object where VERDAT is present.				
Message	BERTHS object includes VERDAT.				
Solution	Remove value of VERDAT.	Conformity	4.6.2		
Test Case No. 1	BERTHS (A, L, P) objects with VERDAT attribution.				
Location	32°29'00.52"S 60°46'01.31"E	S57 encoding	BERTHS (A, L, P)	VERDAT=3	
Screen Capture					
Expected Test Results	T1571: 3 errors “BERTHS object includes VERDAT” must be triggered.				
Secondary Errors	T0547: 3 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1572	Type	E

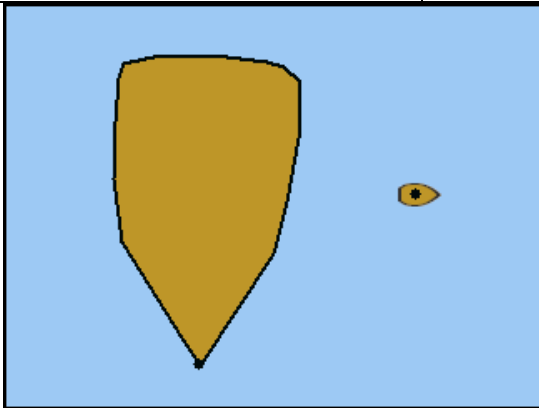
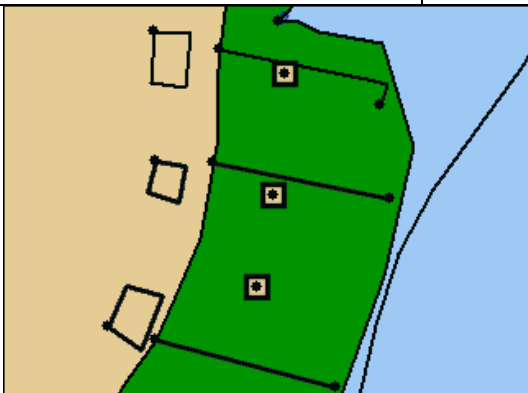
S-58 Description	For each DRYDOC object where VERDAT is present.				
Message	DRYDOC object includes VERDAT.				
Solution	Remove value of VERDAT.	Conformity	4.6.6.1		
Test Case No. 1	DRYDOC (A) with VERDAT attribution.				
Location	32°29'00.30"S 60°45'59.19"E	S57 encoding	DRYDOC (A)	VERDAT=3	
Screen Capture					
Expected Test Results	T1572: An error “DRYDOC object includes VERDAT” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1575	Type	E
S-58 Description	For each FLODOC object where VERDAT or VERACC are present.				
Message	FLODOC object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.	Conformity	4.6.6.2		
Test Case No. 1	FLODOC (A, L) object with attributes for VERDAT & VERACC encoded.				
Location	32°28'56.55"S 60°46'01.05"E	S57 encoding	FLODOC (A, L)	VERDAT=3 VERACC=3	
Screen Capture					
Expected Test Results	T1575: 4 errors “FLODOC object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1577	Type	W

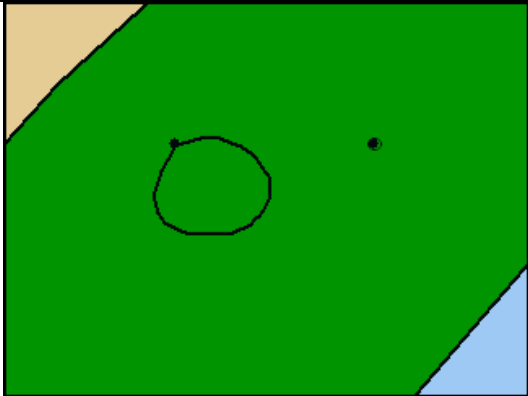
S-58 Description	For each DOCARE where its geometric primitive EQUALS a SEAARE object.				
Message	DOCARE overlaps SEAARE.				
Solution	Amend or delete SEAARE as required.	Conformity	4.6.6.3		
Test Case No. 1	DOCARE overlapping SEAARE.				
Location	32°29'00.63"S 60°45'58.17"E	S57 encoding	SEAARE (A, P) DOCARE (A)	OBJNAM=Denis	
Screen Capture					
Expected Test Results	T1577: 2 warnings “DOCARE overlaps SEAARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500015	S-58 test No.	T1578	Type	E
S-58 Description	For each GATCON object where VERDAT is not Null AND VERCLR is not present.				
Message	VERDAT populated without VERCLR being present.				
Solution	Remove VERDAT or populate VERCLR.	Conformity	4.6.6.4		
Test Case No. 1	GATCON (A, L, P) objects with VERDAT attribution.				
Location	32°29'01.19"S 60°45'58.35"E	S57 encoding	GATCON (A, L, P)	VERDAT=3 HORCLR=50 (for line feature)	
Screen Capture					
Expected Test Results	T1578: 3 errors “VERDAT populated without VERCLR being present” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1581	Type	W

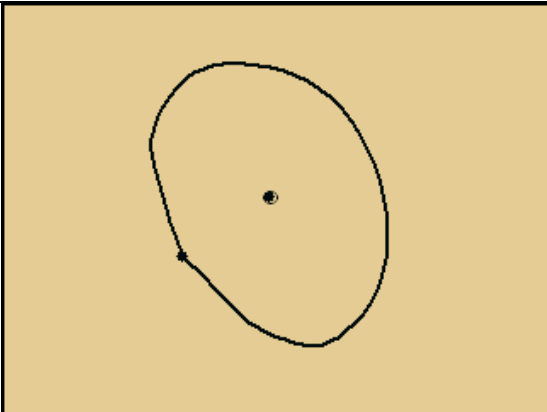
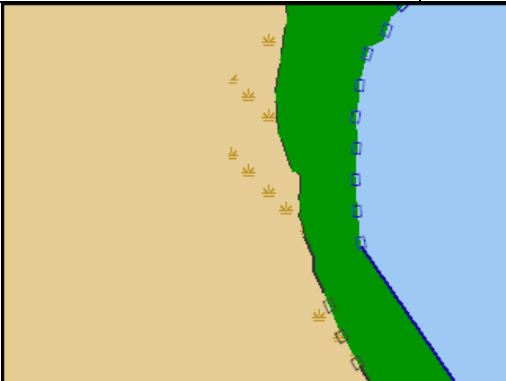
S-58 Description	For each LOKBSN where it's geometric primitive EQUALS a SEAARE object.				
Message	LOKBSN overlaps SEAARE.				
Solution	Amend or delete SEAARE as required.	Conformity	4.6.6.5		
Test Case No. 1	LOKBSN (A) overlapping SEAARE.				
Location	32°28'58.28"S 60°45'58.82"E	S57 encoding	LOKBSN (A) SEAARE (A, P)	OBJNAM=Denis	
Screen Capture					
Expected Test Results	T1581: 2 warnings "LOKBSN overlaps SEAARE" must be triggered.				
Secondary Errors	None				
Dataset Name	AA500015	S-58 test No.	T1582	Type	E
S-58 Description	For each GRIDRN object where HORACC or VERACC are present.				
Message	GRIDRN object includes VERACC or HORACC.				
Solution	Remove values of VERACC or HORDAT.	Conformity	4.6.6.6		
Test Case No. 1	GRIDRN (A, P) objects with attribution for HORACC and VERACC.				
Location	32°28'37.15"S 60°46'17.65"E	S57 encoding	GRIDRN (A, P)	HORACC=50 VERACC=3	
Screen Capture					
Expected Test Results	T1582: 4 errors "GRIDRN object includes VERACC or HORACC" must be triggered.				
Secondary Errors	T1797: An additional error "Object, geometry and attribute combination which do not display in ECDIS present" must be triggered for the point object. T0547: 2 additional errors "Attribute not permitted on object class" must be triggered.				

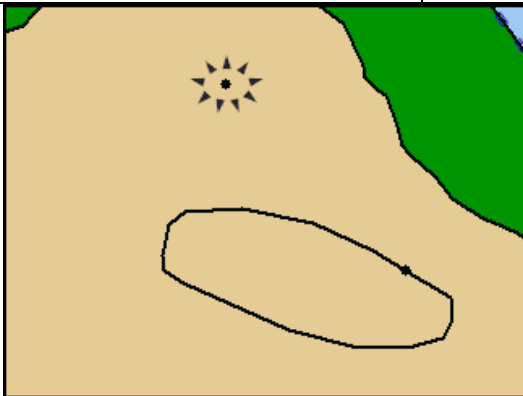
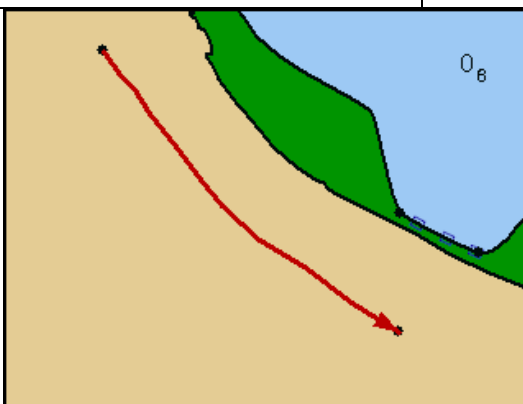
Dataset Name	AA500015	S-58 test No.	T1583	Type	E
S-58 Description	For each MORFAC object where VERDAT or VERACC are present.				
Message	MORFAC object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.		Conformity	4.6.7.1	
Test Case No. 1	MORFAC (A, L, P) with attribution for VERDAT and VERACC.				
Location	32°28'36.20"S 60°46'19.83"E	S57 encoding	MORFAC (A, L, P)	VERDAT=3 VERACC=3 CATMOR=1 HEIGHT=3	
Screen Capture					
Expected Test Results	T1583: 6 errors “MORFAC object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: 3 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1584	Type	E
S-58 Description	For each MORFAC object where WATLEV = 1 [partly submerged at high water] OR 2 [always dry] OR 6 [subject to inundation or flooding] which is not WITHIN a LNDARE object of type area.				
Message	MORFAC with WATLEV=1, 2 or 6 not covered by LNDARE.				
Solution	Amend MORFAC or LNDARE as required.		Conformity	4.6.7.1	
Test Case No. 1	MORFAC (A) with WATLEV attribution and no LNDARE (A) object.				
Location	32°28'42.07"S 60°46'08.40"E	S57 encoding	MORFAC (A)	WATLEV=1,2 and 6 CATMOR=1	
Screen Capture					
Expected Test Results	T1584: 3 errors “MORFAC with WATLEV=1, 2 or 6 not covered by LNDARE” must be triggered.				

Secondary Errors	T1786: An additional error “Area object with WATLEV = (2) but not on an area LNDARE object” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1585	Type	E
S-58 Description	For each PILPNT object where VERDAT or VERACC are present.				
Message	PILPNT object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.		Conformity	4.6.7.2	
Test Case No. 1	PILPNT (P) with attribution for VERDAT, HEIGHT and VERACC.				
Location	32°28'14.89"S 60°45'34.56"E	S57 encoding	PILPNT (P)	VERDAT=3 VERACC=3 HEIGHT=3	
Screen Capture					
Expected Test Results	T1585: 2 errors “PILPNT object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1586	Type	E
S-58 Description	For each PONTON object where VERACC is present.				
Message	PONTON object includes VERACC.				
Solution	Remove value of VERACC.		Conformity	4.6.7.3	
Test Case No. 1	PONTON (A, L) with VERACC attribution encoded.				
Location	32°28'58.93"S 60°44'48.40"E	S57 encoding	PONTON (A, L)	VERACC=3	
Screen Capture					

Expected Test Results	T1586: 2 errors “PONTON object includes VERACC” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1587	Type	E
S-58 Description	For each HULKES object where HORACC OR VERACC are present.				
Message	HULKES object includes HORACC or VERACC.				
Solution	Remove value of VERACC or HORACC.	Conformity		4.6.8	
Test Case No. 1	HULKES (A, P) with attribution for HORACC and VERACC.				
Location	32°29'01.28"S 60°44'50.21"E	S57 encoding	HULKES (A, P)	HORACC=50.0 VERACC=3	
Screen Capture					
Expected Test Results	T1587: 4 errors “HULKES object includes HORACC or VERACC” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1589	Type	W
S-58 Description	For each object where CONDTN equals (1) [under construction], (3) [under reclamation] or (5) [planned construction] AND SORDAT is null or not present.				
Message	Object has a value of CONDTN equal to 1, 3 or 5 without a value for SORDAT.				
Solution	Populate SORDAT.	Conformity		4.6.10	
Test Case No. 1	SLCONS (A, L, P) objects with CONDTN attribute encoded.				
Location	32°28'31.85"S 60°46'24.83"E	S57 encoding	SLCONS (A, L, P)	CONDTN=1,3 and 5	
Screen Capture					

Expected Test Results	T1589: 9 warnings “Object has a value of CONDTN equal to 1, 3 or 5 without a value for SORDAT” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500015	S-58 test No.	T1590	Type	W
S-58 Description	For each LNDRGN object which is not OVERLAPPED by a LNDARE object.				
Message	LNDRGN not covered by LNDARE object.				
Solution	Ensure LNDRGN is covered by or contains a LNDARE object.		Conformity	4.7.1	
Test Case No. 1	LNDRGN (A, P) objects within a DEPAE.				
Location	32°28'33.73"S 60°46'23.75"E	S57 encoding	LNDRGN (A, P)	OBNMAM=Denis	
Screen Capture					
Expected Test Results	T1590: 2 warnings “LNDRGN not covered by LNDARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500015	S-58 test No.	T1591	Type	E
S-58 Description	For each LNDELV object where VERDAT or VERACC are present.				
Message	LNDELV object includes VERACC or VERDAT.				
Solution	Remove values of VERACC or VERDAT.		Conformity	4.7.2	
Test Case No. 1	LNDELV (L, P) with attributes VERDAT, ELEVAT and VERACC encoded.				
Location	32°27'55.76"S 60°45'50.11"E	S57 encoding	LNDELV (L, P)	VERDAT=3 VERACC=3 ELEVAT=10	

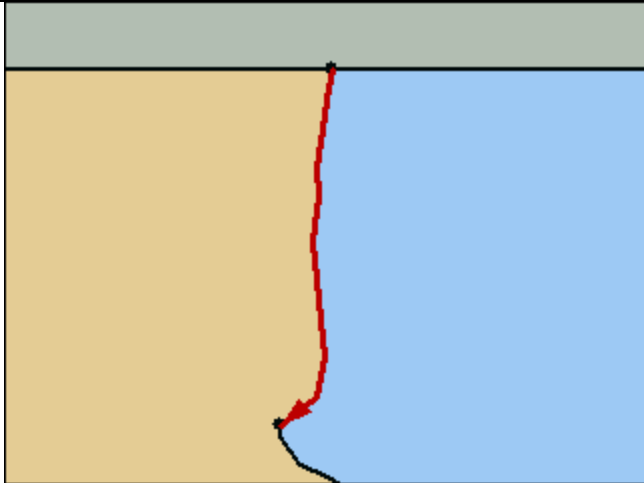
Screen Capture					
Expected Test Results	T1591: 4 errors “LNDELV object includes VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Object contains attributes outside of the list of permissible attributes for the object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1592	Type	W
S-58 Description	For each COALNE object which is COINCIDENT with a LNDRGN object where CATLND equals (2) [marsh] AND CATCOA on the COALNE object does not equal (8) [marshy shore] OR QUAPOS does not equal (4)[approximate].				
Message	Invalid value of QUAPOS or CATCOA for a COALNE object adjacent to a LNDRGN where CATLND equals (2) [marsh].				
Solution	Amend value of QUAPOS or CATCOA as required.		Conformity	4.7.3	
Test Case No. 1	LNDRGN (A) with attribute CATLND adjacent to COALNE. a) Assigned attributes CATCOA=8 for COALNE. b) Assigned attributes CATCOA= UNDEFINED and QUAPOS=4 for COALNE.				
Location	32°27'57.68"S 60°45'59.63"E	S57 encoding	COALNE (L) LNDRGN (A)	CATCOA=8 CATLND =2	
Screen Capture					
Expected Test Results	T1592: 2 warnings “Invalid value of QUAPOS or CATCOA for a COALNE object adjacent to a LNDRGN where CATLND equals (2) [marsh]” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500015	S-58 test No.	T1593	Type	E
S-58 Description	For each SLOGRD object where NATCON OR NATQUA are present.				
Message	SLOGRD object includes NATCON or NATQUA.				

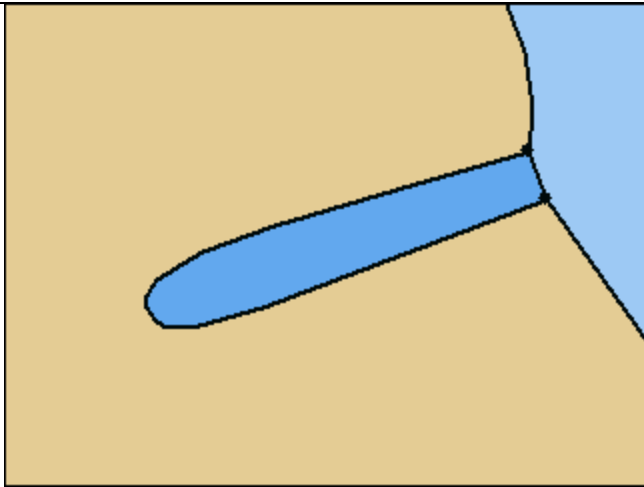
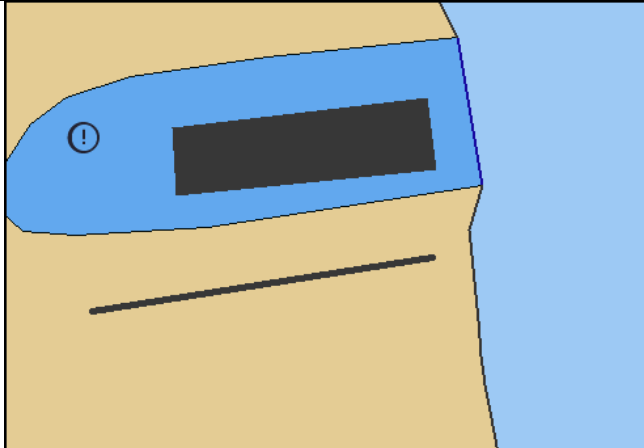
Solution	Remove values of NATCON or NATQUA.		Conformity	4.7.4	
Test Case No. 1	SLOGRD (A, P) with attributes NATCON and NATQUA encoded.				
Location	32°28'08.40"S 60°46'23.28"E	S57 encoding	SLOGRD (A, P)	NATCON=3 NATQUA=3 CATSLO=6	
Screen Capture					
Expected Test Results	T1593: 4 errors “SLOGRD object includes NATCON or NATQUA” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500015	S-58 test No.	T1594	Type	E
S-58 Description	For each SLOTOP object where NATCON, NATQUA, VERACC OR VERDAT are present.				
Message	SLOTOP contains values for NATCON, NATQUA, VERACC or VERDAT.				
Solution	Remove unnecessary values of NATCON, NATQUA, VERACC or VERDAT.		Conformity	4.7.5	
Test Case No. 1	SLOTOP (L) objects with attributes NATCON, NATQUA, VERACC and VERDAT encoded.				
Location	32°28'07.69"S 60°46'04.80"E	S57 encoding	SLOTOP (L)	NATCON=3 NATQUA=3 VERACC=3 VERDAT=3 ELEVAT=3	
Screen Capture					
Expected Test Results	T1594: 4 errors “SLOTOP contains values for NATCON, NATQUA, VERACC or VERDAT” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				

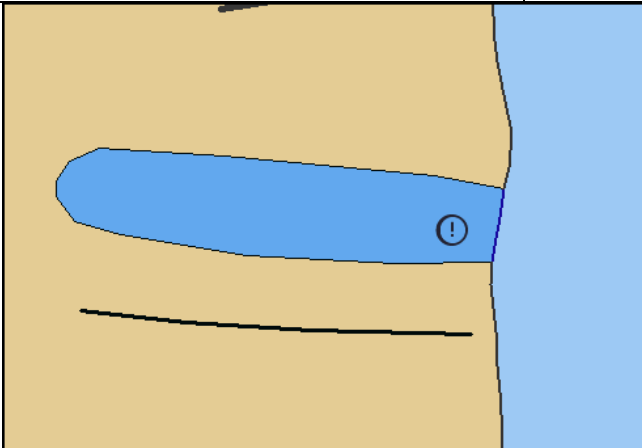
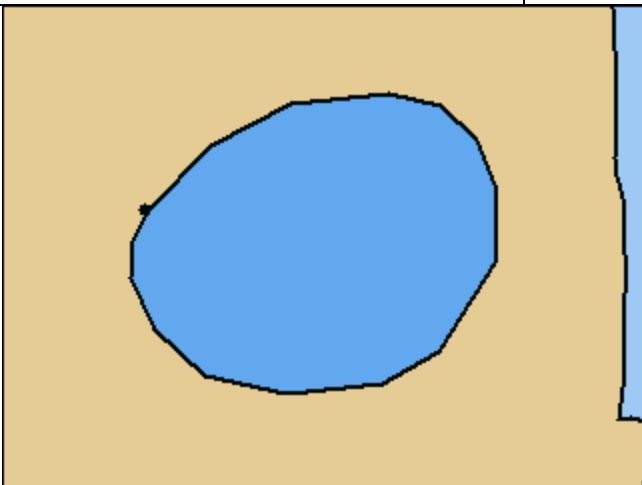
2.16. Test Dataset: AA500016

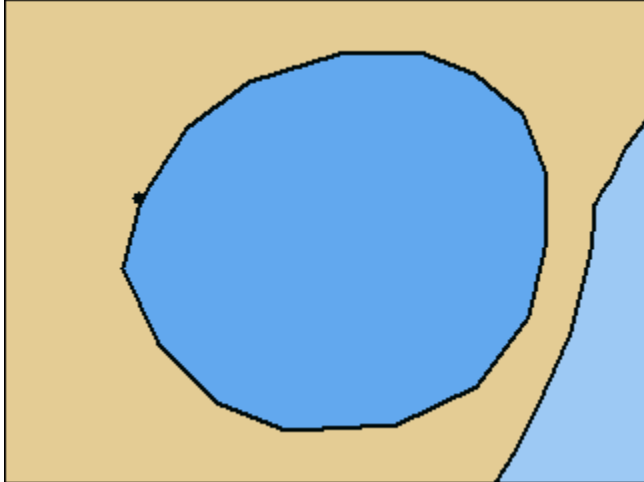
List of S-58 Recommended ENC Validation Checks covered in this section:

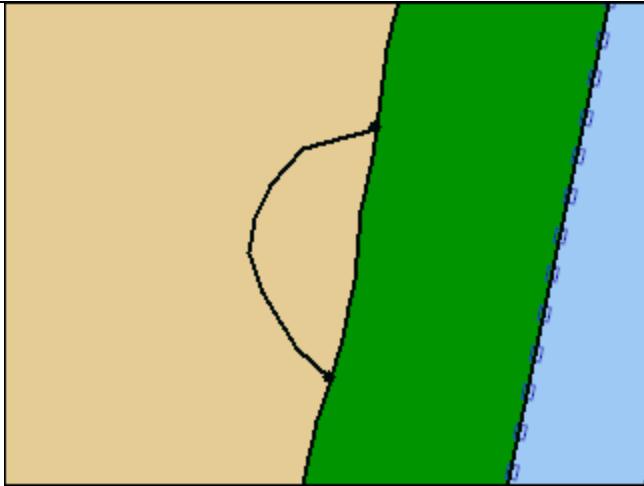
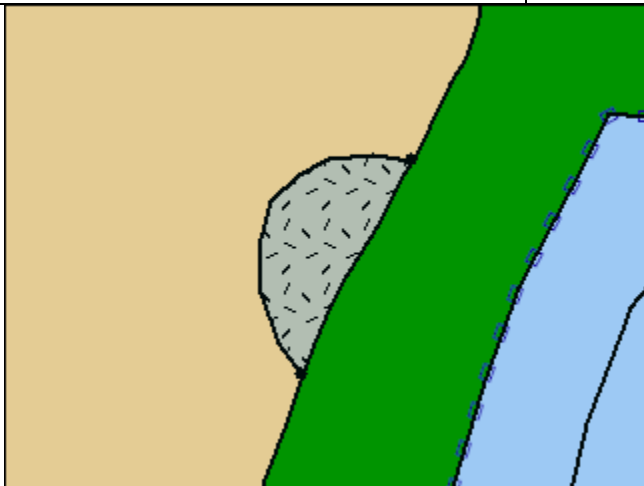
S-58 Test	Description
1595	For each SLOTOP object where CATSLO equals (6) [cliff] AND the object is COINCIDENT with a COALNE object.
1597	For each RIVERS where its geometric primitive EQUALS a SEAARE object.
1598	For each RAPIDS object where VERACC is present.
1600	For each WATFAL object where VERACC is present.
1601	For each LAKARE object where VERDAT or VERACC is present.
1602	For each LAKARE where its geometric primitive EQUALS a SEAARE object.
1604	For each COALNE object which is COINCIDENT with a LNDGRN object where CATLND equals (15) [salt pan] AND CATCOA on the COALNE object does not equal (2) [flat coast].
1606	For each COALNE object where CATCOA is not equal to (6) [glacier (seaward end)] AND which is COINCIDENT with an ICEARE object where CATICE = (5) [glacier].
1608	For each VEGATN object where VERDAT OR VERACC are present.
1609	For each CANALS object where its geometric primitive EQUALS a SEAARE object.
1610	For each RAILWY object where VERACC is present.
1611	For each TUNNELS object where BURDEP is present.
1613	For each TUNNEL object which CONTAINS a CANALS object AND where any of HORCLR, VERACC or VERCLR are not Null.
1614	For each object of type TUNNEL which CONTAINS any non-hydrographic object. (for this check hydrographic objects are DEPART, DEPCNT, DRGARE, LNDARE)
1616	For each DAMCON object where VERDAT OR VERACC are present.
1618	For each DYKCON object where VERDAT OR VERACC are present.
1620	For each edge of a DYKCON object which is COINCIDENT with both a LNDARE object AND a DEPART or DRGARE or UNSARE object of type area AND is not COINCIDENT with an SLCONS of type line where CATSLC is not present.
1623	For each BRIDGE object which OVERLAPS a DEPART or DRGARE object AND its supports are not encoded with PYLONS objects where CATPYL equals (4) [bridge pylon/tower] or (5) [bridge pier].
1626	For each AIRARE object where CONVIS is present.
1627	For each RUNWAY object where CONVIS is present.

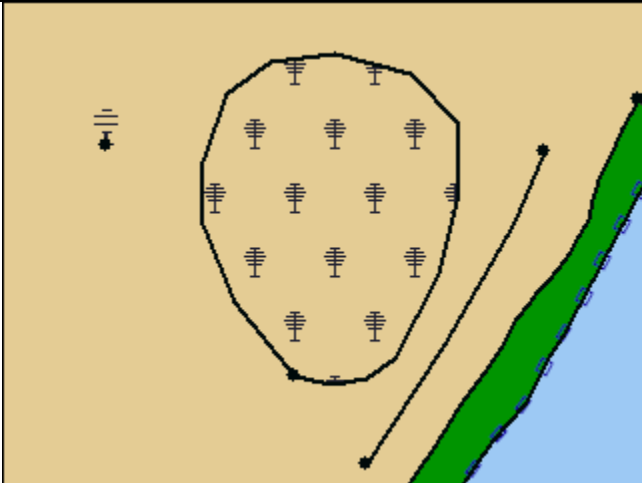
Dataset Name	AA500016	S-58 test No.	T1595	Type	W
S-58 Description	For each SLOTOP object where CATSLO equals (6) [cliff] AND the object is COINCIDENT with a COALNE object.				
Message	SLOTOP object where CATSLO=(6) coincides with a COALNE object.				
Solution	Delete SLOTOP object only COALNE with CATCOA=(1) should be encoded.	Conformity	4.7.5		
Test Case No. 1	SLOTOP (L) with CATSLO attribution sharing geometry with COALNE.				
Location	32°27'33.01"S 60°43'03.10"E	S57 Encoding	SLOTOP (L) COALNE (L)	CATSLO=6	
Screen Capture					
Expected Test Results	T1595: A warning “SLOTOP object where CATSLO=(6) coincides with a COALNE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1597	Type	E
S-58 Description	For each RIVERS where its geometric primitive EQUALS a SEAARE object.				
Message	RIVERS object overlaps a SEAARE object.				
Solution	Amend SEAARE object.	Conformity	4.7.6		
Test Case No. 1	RIVERS (A) sharing geometry with SEAARE (A).				
Location	32°27'36.20"S 60°43'03.57"E	S57 Encoding	RIVERS (A) SEAARE (A)	OBJNAM=UNK NOWN	

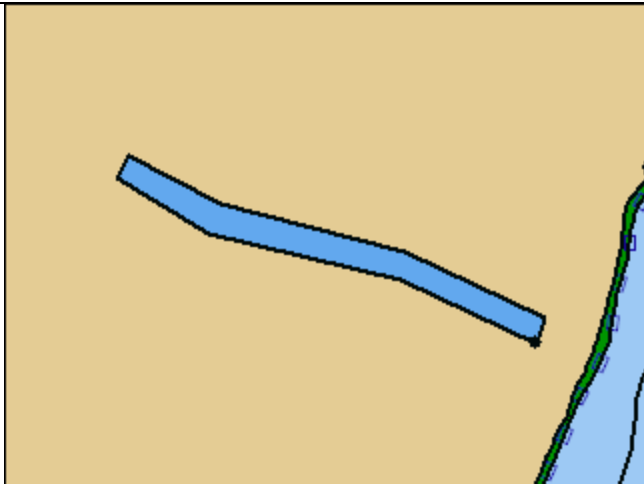
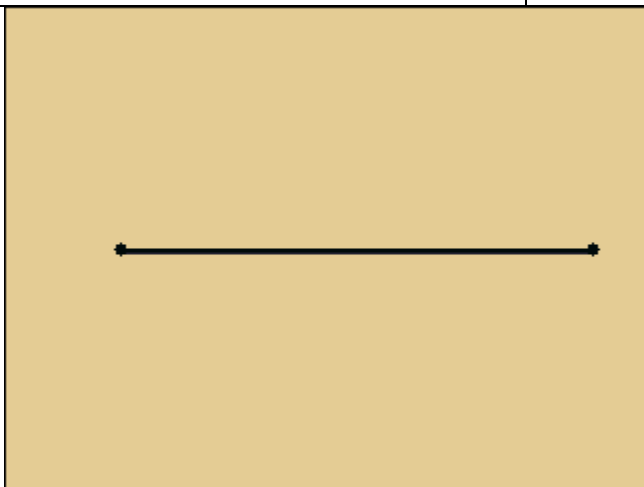
Screen Capture					
Expected Test Results	T1597: An error “RIVERS object overlaps a SEAARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1598	Type	E
S-58 Description	For each RAPIDS object where VERACC is present.				
Message	RAPIDS object includes value of VERACC.				
Solution	Remove value of VERACC.	Conformity	4.7.7.1		
Test Case No.1	RAPIDS (A, L, P) with VERACC attribution overlapping a river area.				
Location	32°27'37.61"S 60°43'03.97"E	S57 Encoding	RIVERS (A) RAPIDS (A, L, P)	VERACC=1	
Screen Capture					
Expected Test Results	T1598: 3 errors “RAPIDS object includes value of VERACC” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500016	S-58 test No.	T1600	Type	E
S-58 Description	For each WATFAL object where VERACC is present.				

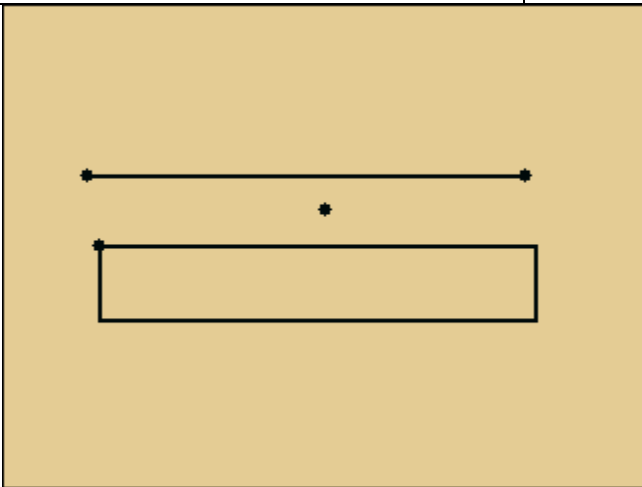
Message	WATFAL object includes value of VERACC.				
Solution	Remove value of VERACC.			Conformity	4.7.7.2
Test Case No.1	WATFAL (L, P) with VERACC attribution overlapping a RIVERS (A).				
Location	32°27'39.33"S 60°43'04.55"E	S57 Encoding	RIVERS (A) WATFAL (L, P)	VERACC=1	
Screen Capture					
Expected Test Results	T1600: 2 errors “WATFAL object includes value of VERACC” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500016	S-58 test No.	T1601	Type	E
S-58 Description	For each LAKARE object where VERDAT or VERACC is present.				
Message	LAKARE object includes value of VERACC or VERDAT.				
Solution	Remove values of VERACC and VERDAT.			Conformity	4.7.8
Test Case No.1	LAKARE (A) with attribution for VERACC and VERDAT.				
Location	32°27'41.50"S 60°43'02.88"E	S57 Encoding	LAKARE (A)	VERACC=1 VERDAT=1	
Screen Capture					
Expected Test Results	T1601: 2 errors “LAKARE object includes value of VERACC or VERDAT” must be triggered.				
Secondary Errors	None				

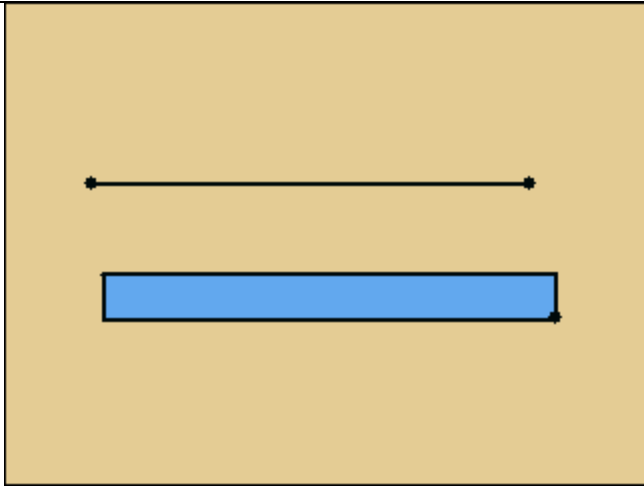
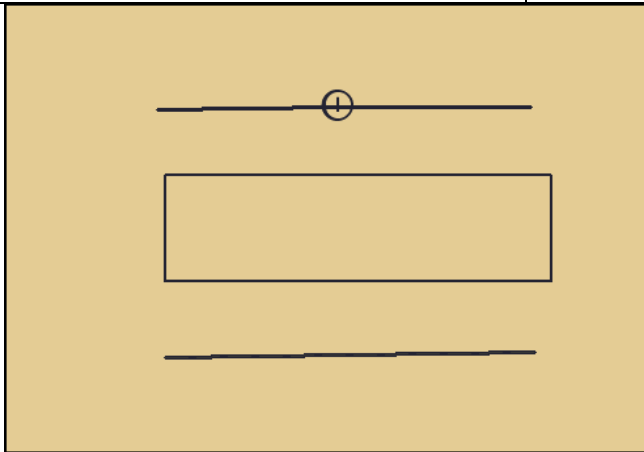
Dataset Name	AA500016	S-58 test No.	T1602	Type	W
S-58 Description	For each LAKARE where its geometric primitive EQUALS a SEAARE object.				
Message	LAKARE overlaps SEAARE object.				
Solution	Amend objects to remove overlap.	Conformity		4.7.8	
Test Case No.1	LAKARE (A) & SEAARE (A) share geometry.				
Location	32°27'44.84"S 60°43'01.29"E	S57 Encoding	LAKARE (A) SEAARE (A)	OBJNAM=UNK NOWN	
Screen Capture					
Expected Test Results	T1602: A warning “LAKARE overlaps SEAARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1604	Type	W
S-58 Description	For each COALNE object which is COINCIDENT with a LNDRGN object where CATLND equals (15) [salt pan] AND CATCOA on the COALNE object does not equal (2) [flat coast].				
Message	COALNE object adjacent to LNDRGN with CATLND = salt pans does not have CATCOA = flat coast.				
Solution	Amend CATCOA on COALNE object to (2) [flat coast].	Conformity		4.7.9	
Test Case No.1	LNDRGN (A) with CATLND attribution adjacent to COALNE with no CATCOA attribution.				
Location	32°28'45.10"S 60°42'40.61"E	S57 Encoding	LNDRGN (A) COALNE (L)	CATLND=15	

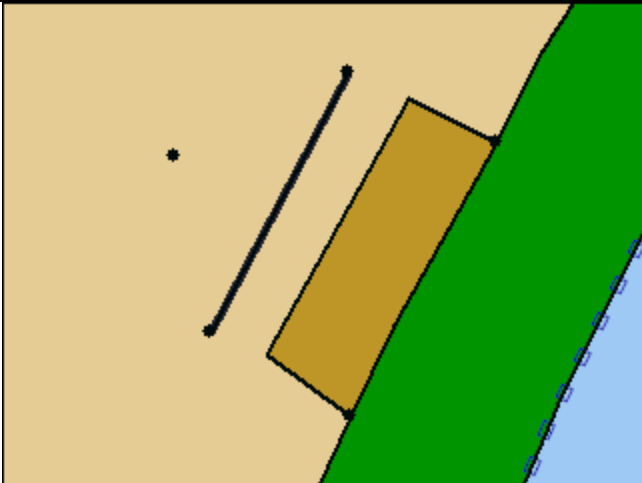
Screen Capture						
Expected Test Results	T1604: A warning “COALNE object adjacent to LNDGRN with CATLND = salt pans does not have CATCOA = flat coast” must be triggered.					
Secondary Errors	None					
Dataset Name	AA500016	S-58 test No.	T1606	Type	W	
S-58 Description	For each COALNE object where CATCOA is not equal to (6) [glacier (seaward end)] AND which is COINCIDENT with an ICEARE object where CATICE = (5) [glacier].					
Message	COALNE without CATCOA (6) touching an ICEARE with CATICE (5) [glacier].					
Solution	Populate CATCOA = (6)) [glacier (seaward end)] for the COALNE object.	Conformity	4.7.10			
Test Case No.1	ICEARE (A) with CATICE attribution adjacent to COALNE with no CATCOA attribution.					
Location	32°28'35.43"S 60°42'43.50"E	S57 Encoding	ICEARE (A) COALNE (L)	CATICE=5		
Screen Capture						
Expected Test Results	T1606: A warning “COALNE without CATCOA (6) touching an ICEARE with CATICE (5) [glacier]” must be triggered.					
Secondary Errors	None					
Dataset Name	AA500016	S-58 test No.	T1608	Type	E	

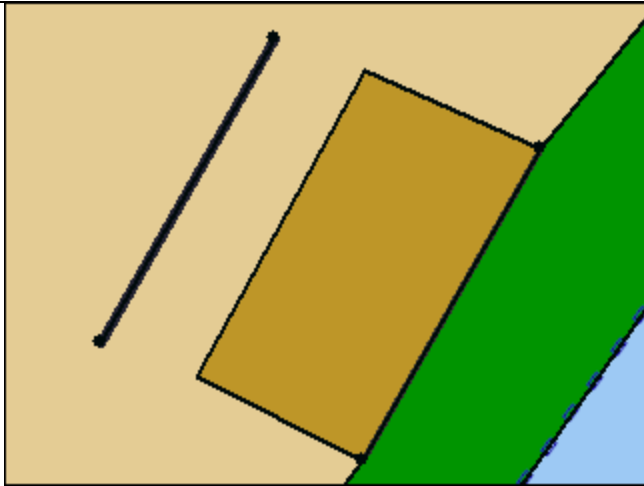
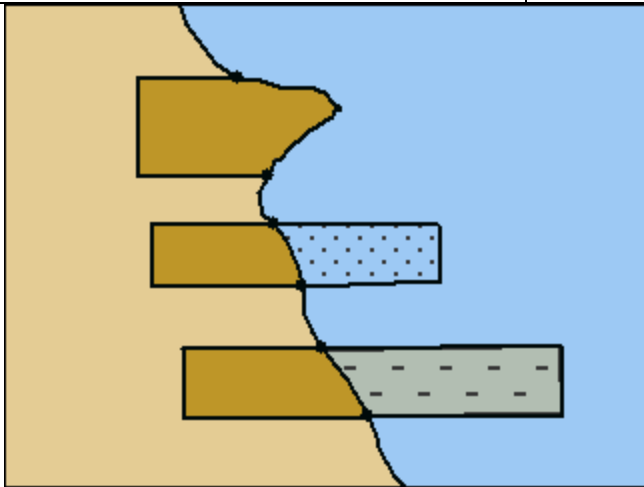
S-58 Description	For each VEGATN object where VERDAT OR VERACC are present.				
Message	VEGATN object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.7.11		
Test Case No.1	VEGATN (A, L, P) with attribution encoded for VERACC and VERDAT.				
Location	32°28'30.06"S 60°42'45.07"E	S57 Encoding	VEGATN (A, L, P)	VERACC=1 VERDAT=1	
Screen Capture					
Expected Test Results	T1608: 6 errors “VEGATN object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1609	Type	W
S-58 Description	For each CANALS object where its geometric primitive EQUALS a SEAARE object.				
Message	CANALS overlaps SEAARE object.				
Solution	Amend objects to remove overlap.	Conformity	4.8.1		
Test Case No.1	CANALS (A) sharing geometry with SEAARE (A).				
Location	32°28'18.41"S 60°42'43.63"E	S57 Encoding	CANALS (A) SEAARE (A)	OBJNAM=UNK NOWN	

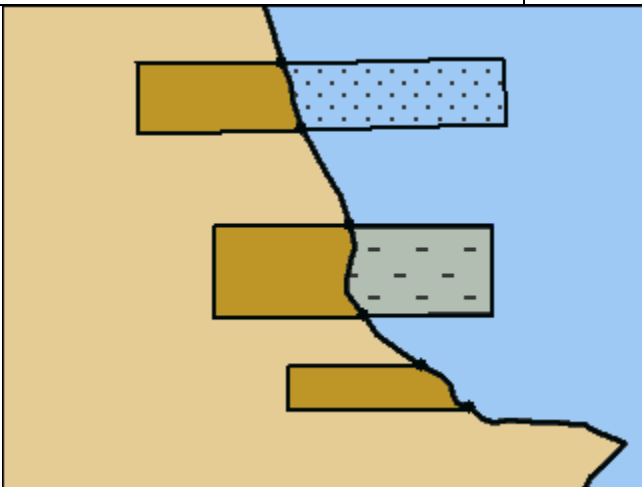
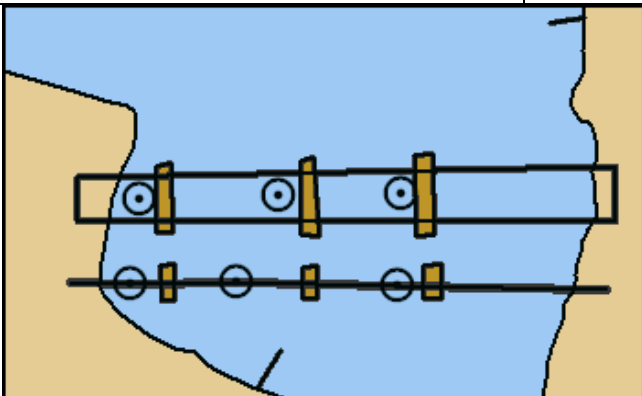
Screen Capture					
Expected Test Results	T1609: A warning “CANALS overlaps SEAARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1610	Type	E
S-58 Description	For each RAILWY object where VERACC is present.				
Message	RAILWY object includes value of VERACC.				
Solution	Remove value of VERACC.	Conformity	4.8.2		
Test Case No.1	RAILWY (L) with attribution for VERACC encoded.				
Location	32°27'40.25"S 60°42'09.61"E	S57 Encoding	RAILWY (L)	VERACC=1	
Screen Capture					
Expected Test Results	T1610: An error “RAILWY object includes value of VERACC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1611	Type	E
S-58 Description	For each TUNNELS object where BURDEP is present.				
Message	TUNNELS object includes value of BURDEP.				

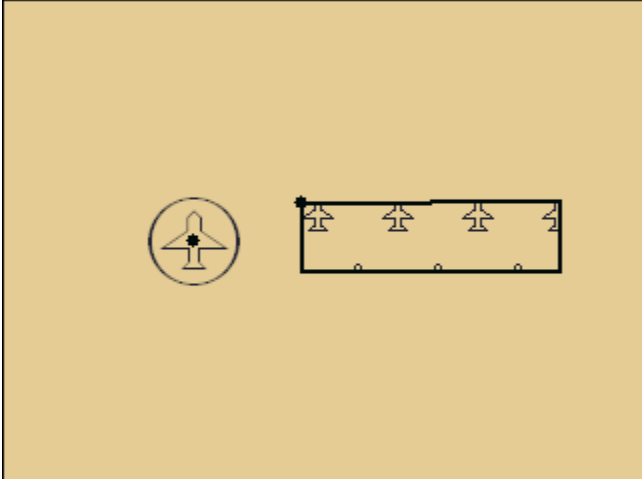
Solution	Remove value of BURDEP.		Conformity	4.8.3	
Test Case No.1	TUNNELS (A, L, P) with attribution for BURDEP encoded.				
Location	32°27'41.02"S 60°42'43.57"E	S57 Encoding	TUNNEL (A, L, P)	BURDEP=1	
Screen Capture					
Expected Test Results	T1611: 3 errors “TUNNELS object includes value of BURDEP” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500016	S-58 test No.	T1613	Type	E
S-58 Description	For each TUNNEL object which CONTAINS a CANALS object AND where any of HORCLR, VERACC or VERCLR are not Null.				
Message	TUNNEL which covers a CANALS has values of HORCLR, VERACC or VERCLR.				
Solution	Remove unnecessary attribute values.		Conformity	4.8.3	
Test Case No.1	TUNNEL (A, L) with attribution for HORACC, HORCLR, VERACC and VERCLR overlapping CANALS (A, L).				
Location	32°27'51.57"S 60°42'41.77"E	S57 Encoding	CANALS (A, L) TUNNEL (A, L)	HORCLR=1 HORACC=1 VERACC=1 VERCLR=1	

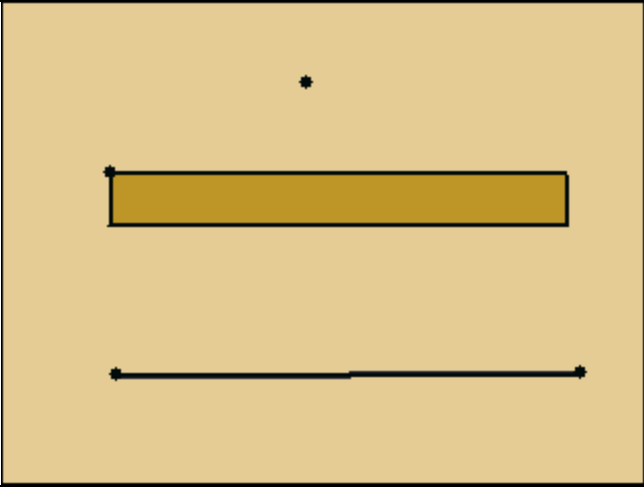
Screen Capture					
Expected Test Results	T1613: 8 errors “TUNNEL which covers a CANALS has values of HORCLR, VERACC or VERCLR” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1614	Type	W
S-58 Description	For each object of type TUNNEL which CONTAINS any non-hydrographic object. (for this check hydrographic objects are DEPARE, DEPCNT, DRGARE, LNDARE)				
Message	TUNNEL contains non Hydrographic object.				
Solution	Delete objects within TUNNEL which are unnecessary.		Conformity	4.8.3	
Test Case No.1	TUNNEL (A, L) containing a non-hydrographic ROADWY (A, L).				
Location	32°28'03.57"S 60°42'19.06"E	S57 Encoding	TUNNEL (A, L, P) ROADWY (A, L)		
Screen Capture					
Expected Test Results	T1614: 4 warnings “TUNNEL contains non Hydrographic object” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500016	S-58 test No.	T1616	Type	E

S-58 Description	For each DAMCON object where VERDAT OR VERACC are present.				
Message	DAMCON object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.5		
Test Case No.1	DAMCON (A, L, P) with attributes VERACC and VERDAT encoded.				
Location	32°28'09.87"S 60°42'55.19"E	S57 Encoding	DAMCON (A, L, P)	VERACC=1 VARDAT=1	
Screen Capture					
Expected Test Results	T1616: 6 errors “Remove values of VERDAT or VERACC” must be triggered.				
Secondary Errors	T1797: An Additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500016	S-58 test No.	T1618	Type	E
S-58 Description	For each DYKCON object where VERDAT OR VERACC are present.				
Message	DYKCON object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.7		
Test Case No.1	DYKCON (A, L) with attributes VERDAT and VERACC encoded.				
Location	32°28'05.49"S 60°42'57.94"E	S57 Encoding	DYKCON (A, L)	VERACC=1 VERDAT=1	

Screen Capture					
Expected Test Results	T1618: 2 errors “DYKCON object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1620	Type	E
S-58 Description	For each edge of a DYKCON object which is COINCIDENT with both a LNDARE object AND a DEPARE or DRGARE or UNSARE object of type area AND is not COINCIDENT with an SLCONS of type line where CATSLC is not present.				
Message	DYKCON not enclosed by SLCONS object where it forms the boundary between water and land.				
Solution	Add SLCONS to ensure boundary between land and water is shown.	Conformity	4.8.7		
Test Case No.1	DYKCON (A) coincident with LNDARE (A), DEPARE (A), DRGARE and UNSARE, that it is not coincident with SLCONS (L).				
Location	32°28'39.16"S 60°40'46.90"E	S57 Encoding	DRGARE (A) DYKCON (A) UNSARE (A)	DRVAL1=1	
Screen Capture					
Expected Test Results	T1620: 3 errors “DYKCON not enclosed by SLCONS object where it forms the boundary between water and land” must be triggered.				
Secondary Errors	None				
Test Case No.2	DYKCON (A) which is coincident with LNDARE (A), DEPARE (A), DRGARE and UNSARE, that it is also coincident with SLCONS (L) with CATSLC attribution encoded.				

Location	32°28'51.47"S 60°40'52.58"E	S57 Encoding	DYKCON (A) UNSARE (A) DRGARE (A) SLCONS (L)	DRVAL1=1 CATSLC=10 WATLEV=2	
Screen Capture					
Expected Test Results	T1620: 3 errors “DYKCON not enclosed by SLCONS object where it forms the boundary between water and land” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1623	Type	E
S-58 Description	For each BRIDGE object which OVERLAPS a DEPARE or DRGARE object AND its supports are not encoded with PYLONS objects where CATPYL equals (4) [bridge pylon/tower] or (5) [bridge pier].				
Message	BRIDGE over navigable water with supports not encoded using a valid PYLONS object/attribute combination.				
Solution	Ensure bridge supports are encoded using PYLONS with CATPYL equals (4) [bridge pylon/tower] or (5) [bridge pier].		Conformity	4.8.10	
Test Case No.1	PYLONS (A, P) with CATPYL attribution encoded, being used as a bridge support in navigable water.				
Location	32°29'15.69"S 60°41'04.90"E	S57 Encoding	BRIDGE (A) PYLONS (A, P)	CATBRG=1 VERCLR=UNKN OWN CATPYL=1,2 or 3	
Screen Capture					
Expected Test Results	T1623: 12 errors “BRIDGE over navigable water with supports not encoded using a valid PYLONS				

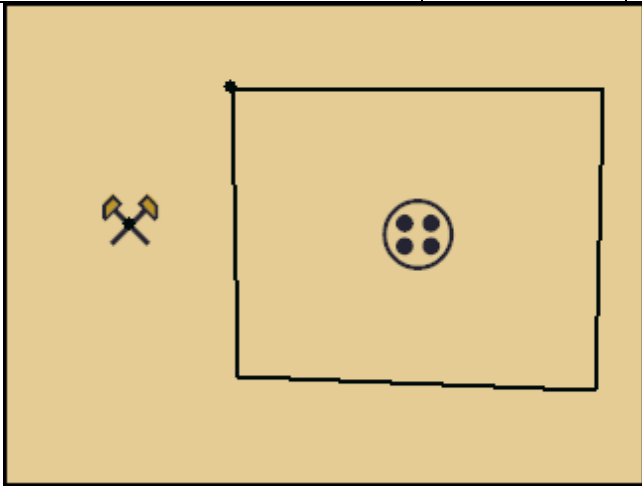
	object/attribute combination” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1626	Type	E
S-58 Description	For each AIRARE object where CONVIS is present.				
Message	AIRARE object includes CONVIS.				
Solution	Remove value of CONVIS.	Conformity	4.8.12		
Test Case No.1	AIRARE (A, P) with attribute CONVIS.				
Location	32°29'11.95"S 60°42'33.72"E	S57 Encoding	AIRARE (A, P)	CONVIS=1	
Screen Capture					
Expected Test Results	T1626: 2 errors “AIRARE object includes CONVIS” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500016	S-58 test No.	T1627	Type	E
S-58 Description	For each RUNWAY object where CONVIS is present.				
Message	RUNWAY object includes CONVIS.				
Solution	Remove value of CONVIS.	Conformity	4.8.12		
Test Case No.1	RUNWAY (A, L, P) with attribute CONVIS.				
Location	32°29'18.96"S 60°42'37.14"E	S57 Encoding	RUNWAY (A, L, P)	CONVIS=1	

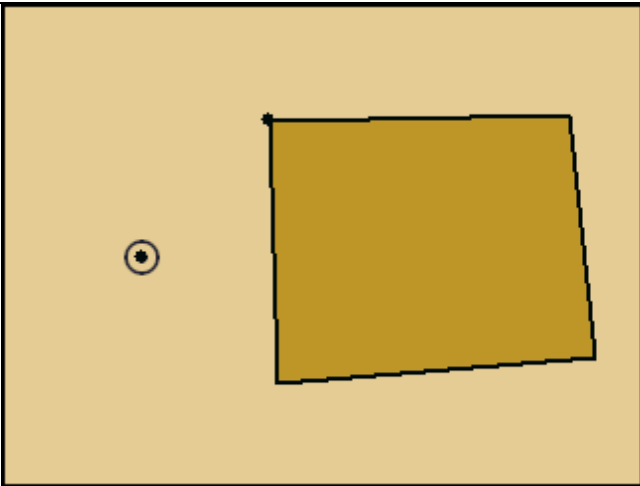
Screen Capture		
Expected Test Results	T1627: 3 errors "RUNWAY object includes CONVIS" must be triggered.	
Secondary Errors	T1797: An additional error "Object, geometry and attribute combination which do not display in ECDIS present" must be triggered.	

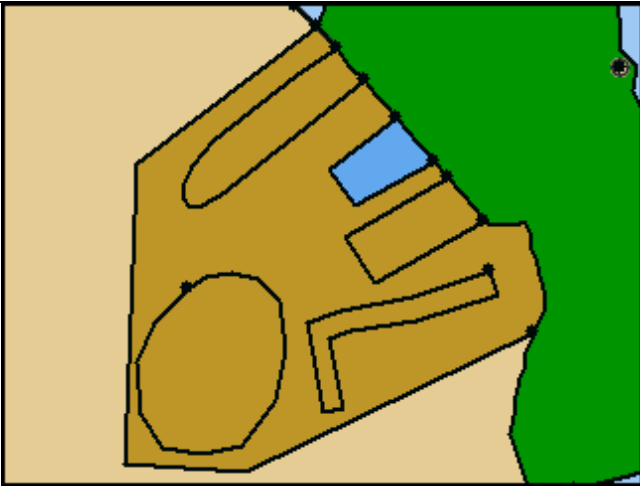
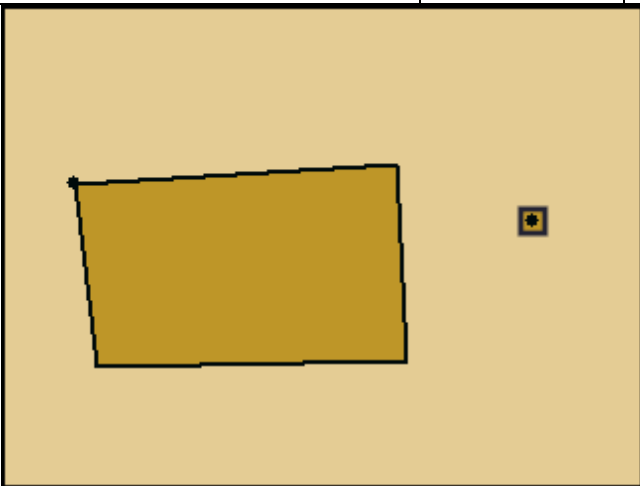
2.17. Test Dataset: AA500017

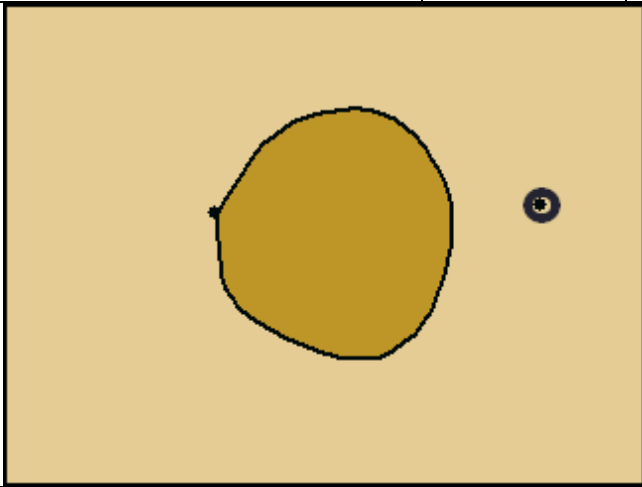
List of S-58 Recommended ENC Validation Checks covered in this section:

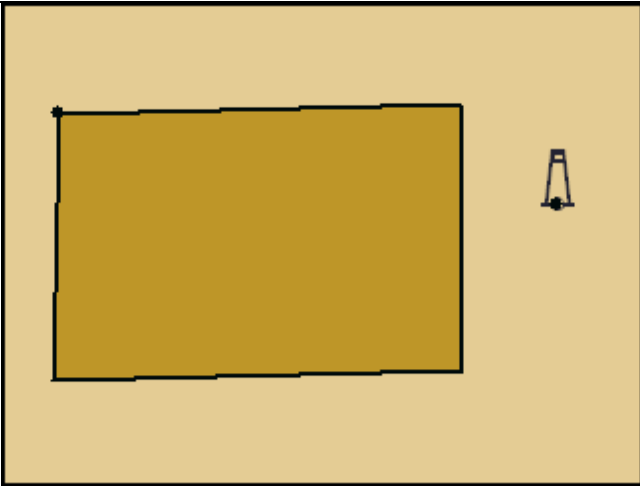
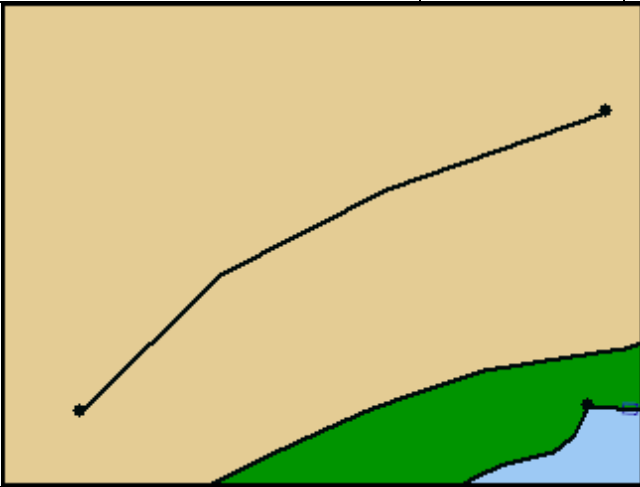
S-58 Test	Description
1628	For each PRDARE object where VERDAT OR VERACC are present.
1629	For each BUAARE object where VERDAT OR VERACC are present.
1630	For each RIVERS, LOKBSN, DOCARE, LAKARE or CANALS object of type area which OVERLAPS a BUAARE object.
1631	For each BUISGL object where VERDAT OR VERACC are present.
1632	For each SILTNK object where VERDAT OR VERACC are present.
1633	For each LNDMRK object where VERDAT OR VERACC are present.
1634	For each FNCLNE object where VERDAT OR VERACC are present.
1635	For each FORSTC object where VERDAT OR VERACC are present.
1636	For each PYLONS object where VERDAT OR VERACC are present.
1017	For each picture file which is not in the TIFF format.
1639	For each DEPCNT object where VERDAT is present.
1640	For each SOUNDG object where VERDAT is present.
1641	For each UWTROC object which is COINCIDENT with a SOUNDG object. (COINCIDENT applies to the horizontal component only).
1642	For each DEPARE object where VERDAT OR SOUACC are present.
1644	For each edge bounding a DEPARE object which is COINCIDENT with an M_COVR object AND is COINCIDENT with a geo object of type line.
1646	For each DRGARE object where DRVAL2 is not Null and it is equal to the value of DRVAL1.
1647	For each DRGARE object where VERDAT is present.
1650	For each SWPARE object where VERDAT is present.
1653	For each SWPARE object WITHIN an M_QUAL object where SOUACC is not Null AND SOUACC on the M_QUAL object relates to all SOUNDINGS WITHIN it.
1654	For each SWPARE object where TECSOU is not Null AND is not (6) [swept by wire-drag] , (8) [swept by vertical acoustic system] or (13) [swept by side-scan sonar].

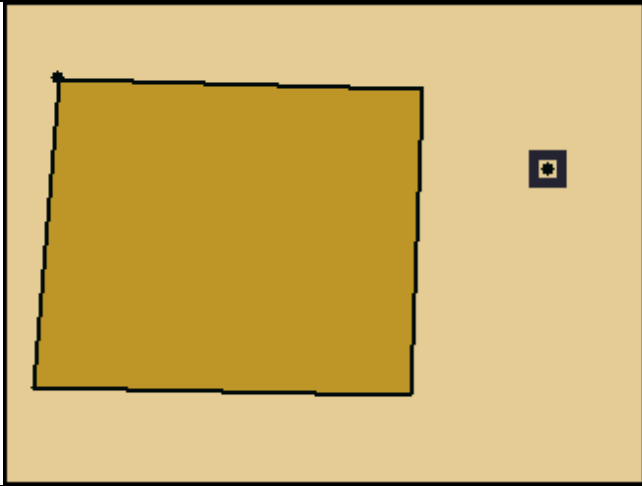
Dataset Name	AA500017	S-58 test No.	T1628	Type	E
S-58 Description	For each PRDARE object where VERDAT OR VERACC are present.				
Message	PRDARE object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.13		
Test Case No. 1	PRDARE (A, P) with attributes VERDAT and VERACC.				
Location	32°29'28.91"S 60°42'36.35"E	S57 Encoding	PRDARE (A, P)	CATPRA=8 or 1 VERACC=3 VERDAT=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1628: 4 errors “PRDARE object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1629	Type	E
S-58 Description	For each BUAARE object where VERDAT OR VERACC are present.				
Message	BUAARE object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.14		
Test Case No. 1	BUAARE (A, P) with attributes VERDAT and VERACC.				
Location	32°29'42.40"S 60°42'29.21"E	S57 Encoding	BUAARE (A, P)	VERACC=3 VERDAT=3 HEIGHT=1.0	

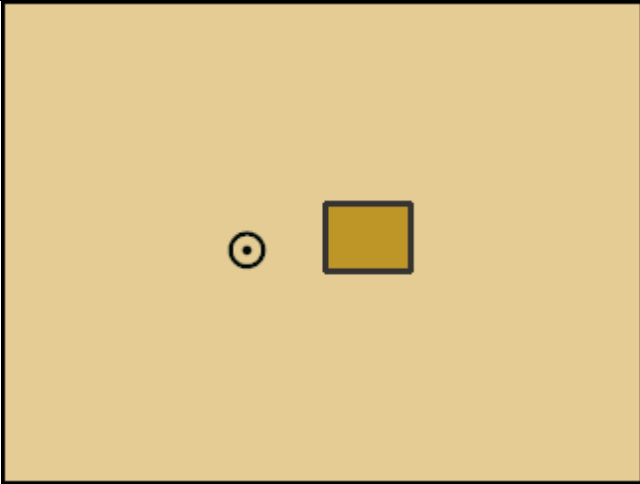
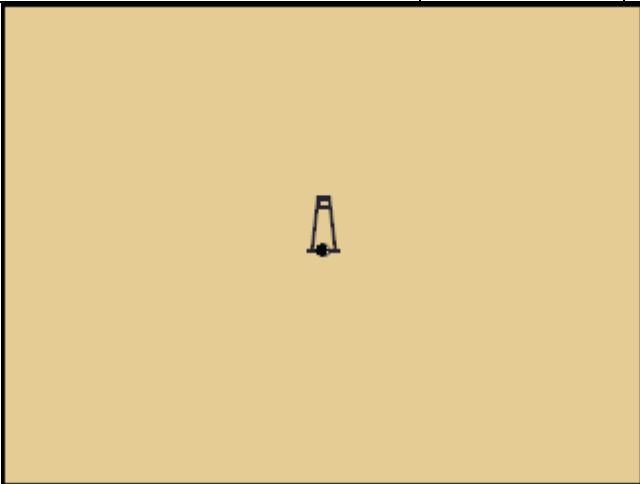
Screen Capture					
Expected Test Results	T1629: 4 errors “BUAARE object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1630	Type	W
S-58 Description	For each RIVERS, LOKBSN, DOCARE, LAKARE or CANALS object of type area which OVERLAPS a BUAARE object.				
Message	BUAARE object overlaps a RIVERS, LOKBSN, DOCARE, LAKARE or CANALS object of type area.				
Solution	Amend BUAARE object to remove overlap.		Conformity	4.8.14	
Test Case No. 1	RIVERS (A) on BUAARE (A). LOKBSN (A) on BUAARE (A). DOCARE (A) on BUAARE (A). LAKARE (A) on BUAARE (A). CANALS (A) on BUAARE (A).				
Location	32°29'49.62"S 60°42'51.53"E	S57 Encoding	BUAARE(A) RIVERS(A) LOKBSN(A) DOCARE(A) LAKARE(A) CANALS(A)		

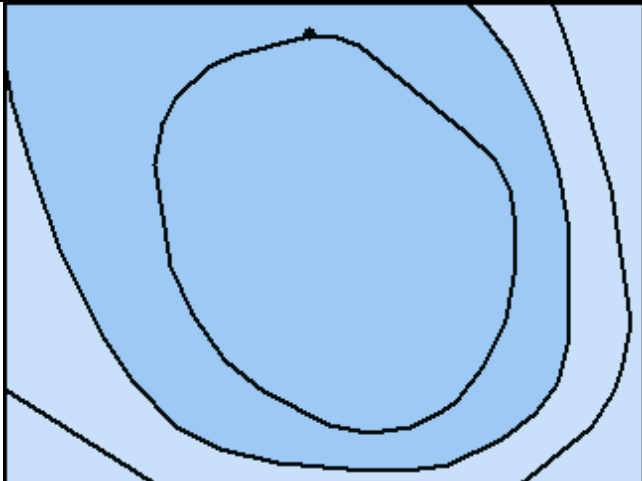
Screen Capture					
Expected Test Results	T1630: 5 warnings “BUAARE object overlaps a RIVERS, LOKBSN, DOCARE, LAKARE or CANALS object of type area” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500017	S-58 test No.	T1631	Type	E
S-58 Description	For each BUISSL object where VERDAT OR VERACC are present.				
Message	BUISSL object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.		Conformity	4.8.15	
Test Case No. 1	BUISSL (A, P) with attributes VERDAT and VERACC.				
Location	32°29'56.73"S 60°42'51.39"E	S57 Encoding	BUISSL (A, P)	VERACC=3 VERDAT=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1631: 4 errors “BUISSL object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1632	Type	E

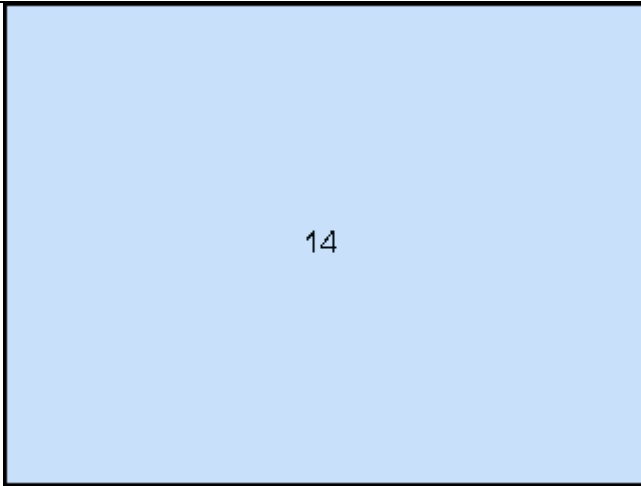
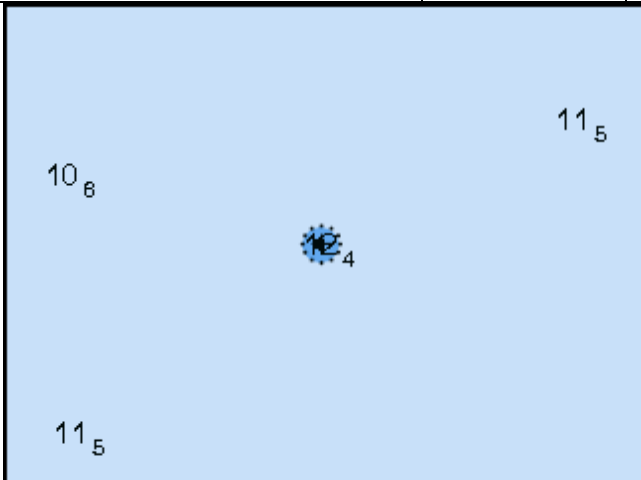
S-58 Description	For each SILTNK object where VERDAT OR VERACC are present.				
Message	SILTNK object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.		Conformity	4.8.15	
Test Case No. 1	SILTNK (A, P) with attributes VERDAT and VERACC.				
Location	32°30'06.75"S 60°42'50.07"E	S57 Encoding	SILTNK (A, P)	CATSIL=2 VERACC=3 VERDAT=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1632: 4 errors “SILTNK object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1633	Type	E
S-58 Description	For each LNDMRK object where VERDAT OR VERACC are present.				
Message	LNDMRK object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.		Conformity	4.8.15	
Test Case No. 1	LNDMRK (A, P) with attributes VERDAT and VERACC.				
Location	32°30'18.20"S 60°42'45.79"E	S57 Encoding	LNDMRK (A, P)	CATLMK=9 or 17 CONVIS=2 VERACC=3 VERDAT=3 HEIGHT=1.0	

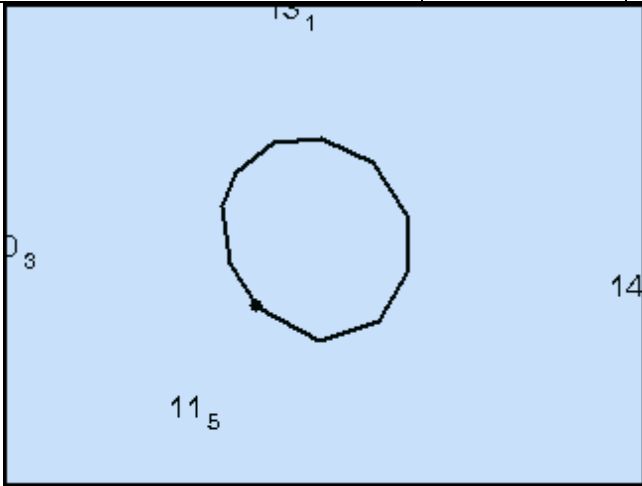
Screen Capture					
Expected Test Results	T1633: 4 errors “LNDMRK object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1634	Type	E
S-58 Description	For each FNCLNE object where VERDAT OR VERACC are present.				
Message	FNCLNE object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.		Conformity	4.8.16	
Test Case No. 1	FNCLNE (L) with attributes VERDAT and VERACC.				
Location	32°30'19.36"S 60°42'18.89"E	S57 Encoding	FNCLNE (L)	VERACC=3 VERDAT=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1634: 2 errors “FNCLNE object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				

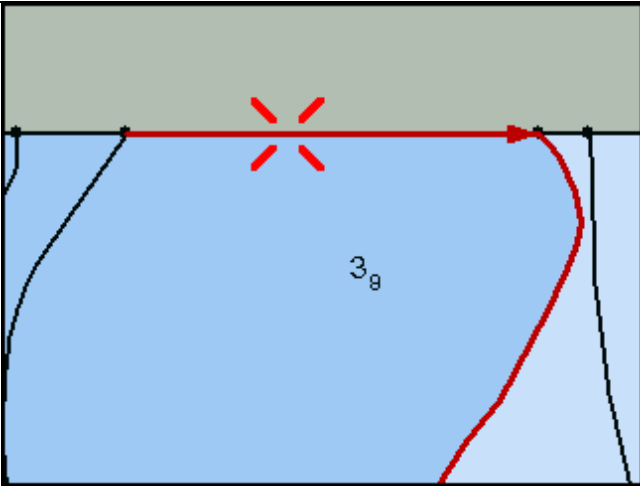
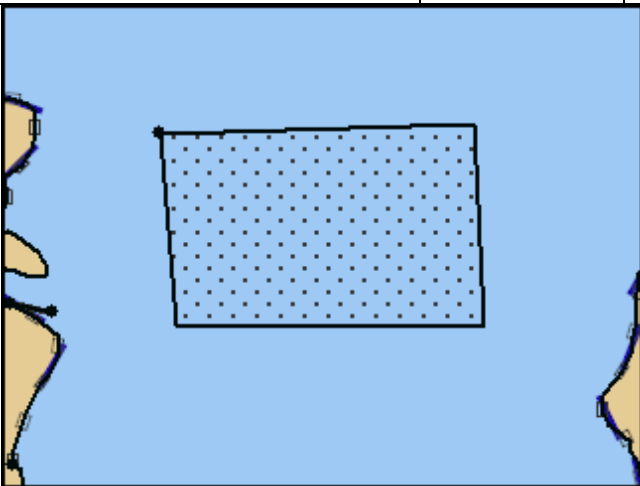
Dataset Name	AA500017	S-58 test No.	T1635	Type	E
S-58 Description	For each FORSTC object where VERDAT OR VERACC are present.				
Message	FORSTC object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.17		
Test Case No. 1	FORSTC (A, P) with attributes VERDAT and VERACC.				
Location	32°30'35.41"S 60°41'59.42"E	S57 Encoding	FORSTC (A, P)	CATFOR=1 VERACC=3 VERDAT=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1635: 4 errors “FORSTC object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1636	Type	E
S-58 Description	For each PYLONS object where VERDAT OR VERACC are present.				
Message	PYLONS object includes VERDAT or VERACC.				
Solution	Remove values of VERDAT or VERACC.	Conformity	4.8.18		
Test Case No. 1	PYLONS (A, P) with attributes VERDAT and VERACC.				
Location	32°30'56.29"S 60°42'02.96"E	S57 Encoding	PYLONS (A, P)	CATPYL=1 VERACC=3 VERDAT=3 HEIGHT=1.0	

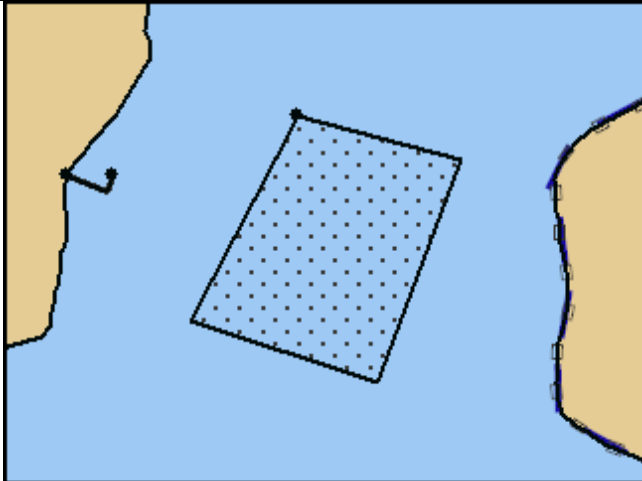
Screen Capture					
Expected Test Results	T1636: 4 errors “PYLONS object includes VERDAT or VERACC” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1017	Type	C
S-58 Description	For each picture file which is not in the TIFF format.				
Message	Picture file not in Tiff format.				
Solution	Replace picture file with Tiff format version.	Conformity	4.8.20		
Test Case No. 1	LNDMRK (P)				
Location	32°31'09.56"S 60°42'07.20"E	S57 Encoding	LNDMRK (P)	PICREP=AA123456.TX T	
Screen Capture					
Expected Test Results	T1017: An error “Picture file not in Tiff format” must be triggered.				
Secondary Errors	T1005: An additional error “Referenced files are missing or their names are non-conformant” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1639	Type	E

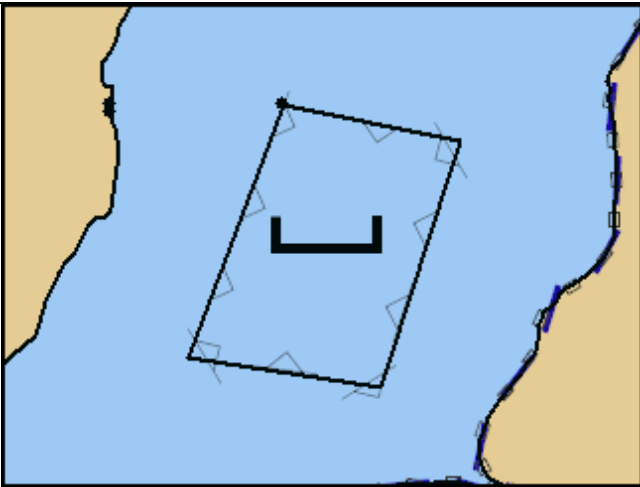
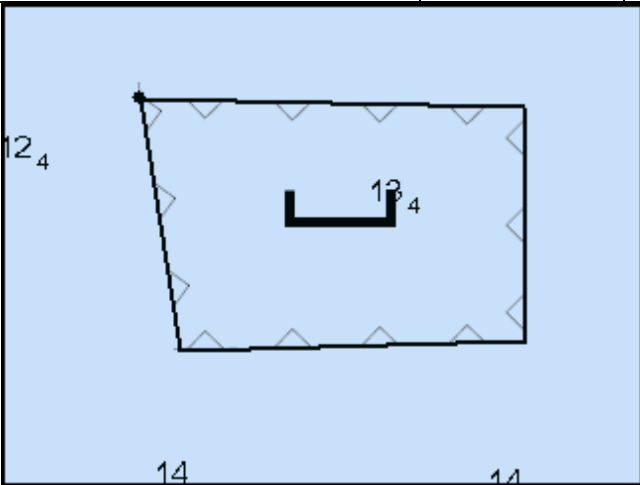
S-58 Description	For each DEPCNT object where VERDAT is present.				
Message	VERDAT present on DEPCNT.				
Solution	Remove VERDAT.	Conformity	5.2		
Test Case No. 1	DECPNT (L) with attribute VERDAT.				
Location	32°31'00.27"S 60°42'46.34"E	S57 Encoding	DEPCNT (L)	VALDCO=3.6 VERDAT=3	
Screen Capture					
Expected Test Results	T1639: An error “VERDAT present on DEPCNT” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1640	Type	E
S-58 Description	For each SOUNDG object where VERDAT is present.				
Message	SOUNDG object includes VERDAT.				
Solution	Remove VERDAT.	Conformity	5.3		
Test Case No. 1	SOUNDG with attribute VERDAT.				
Location	32°31'04.78"S 60°43'09.93"E	S57 Encoding	SOUNDG	VERDAT=3	

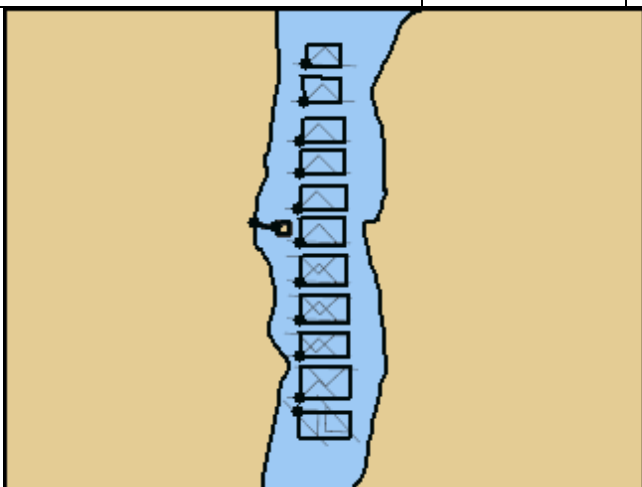
Screen Capture					
Expected Test Results	T1640: An error “SOUNDG object includes VERDAT” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1641	Type	E
S-58 Description	For each UWTROC object which is COINCIDENT with a SOUNDG object. (COINCIDENT applies to the horizontal component only).				
Message	UWTROC object coincident with SOUNDG object.				
Solution	Remove object which is not required.		Conformity	5.3	
Test Case No. 1	UWTROC and SOUNDG points using the same spatial node.				
Location	32°31'09.85"S 60°42'40.71"E	S57 Encoding	SOUNDG (P) UWTROC (P)	QUASOU=2 WATLEV=3 VALSOU=UNKNOWN	
Screen Capture					
Expected Test Results	T1641: An error “UWTROC object coincident with SOUNDG object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500017	S-58 test No.	T1642	Type	E

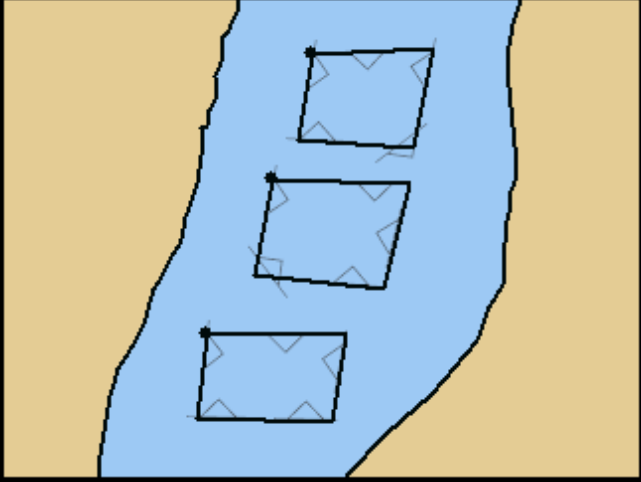
S-58 Description	For each DEPARE object where VERDAT OR SOUACC are present.				
Message	VERDAT or SOUACC present on a DEPARE object.				
Solution	Remove VERDAT or SOUACC.	Conformity	5.4.1		
Test Case No. 1	DEPARE (A) with attributes VERDAT and SOUACC.				
Location	32°30'26.25"S 60°43'16.18"E	S57 Encoding	DEPARE (A)	DRVAL1=5.4 DRVAL2=9.1 SOUACC=3 VERDAT=3	
Screen Capture					
Expected Test Results	T1642: 2 error “VERDAT or SOUACC present on a DEPARE object” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1644	Type	W
S-58 Description	For each edge bounding a DEPARE object which is COINCIDENT with an M_COVR object AND is COINCIDENT with a geo object of type line.				
Message	DEPARE objects on the edge of data coverage not bounded by line spatial objects without geo objects.				
Solution	Ensure DEPARE objects at the edge of dataset only have spatial objects without geo objects as their outer boundary.	Conformity	5.4.2 (Fig.5).		
Test Case No. 1	DEPCNT (L) extended along the data limit border.				
Location	32°29'24.55"S 60°42'57.47"E	S57 Encoding	DEPCNT (L)	VALDCO=5.4	

Screen Capture					
Expected Test Results	T1644: A warning “DEPARE objects on the edge of data coverage not bounded by line spatial objects without geo objects” must be triggered.				
Secondary Errors	T0043: An additional error “DEPCNT does not coincide with two group 1 objects” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1646	Type	W
S-58 Description	For each DRGARE object where DRVAL2 is not Null and it is equal to the value of DRVAL1.				
Message	DRVAL1 and DRVAL2 have the same value for a DRGARE object.				
Solution	Amend values or remove value of DRVAL2.		Conformity	5.5	
Test Case No. 1	DRGARE (A) with attributes DRVAL1 and DRVAL2.				
Location	32°31'09.12"S 60°40'54.00"E	S57 Encoding	DRGARE (A)	DRVAL1=4.5 DRVAL2=4.5	
Screen Capture					
Expected Test Results	T1646: A warning “DRVAL1 and DRVAL2 have the same value for a DRGARE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500017	S-58 test No.	T1647	Type	E

S-58 Description	For each DRGARE object where VERDAT is present.				
Message	DRGARE object includes VERDAT.				
Solution	Remove VERDAT.	Conformity	5.5		
Test Case No. 1	DRGARE (A) with attribute VERDAT.				
Location	32°30'54.96"S 60°40'54.79"E	S57 Encoding	DRGARE (A)	DRVAL1=3 VERDAT=3	
Screen Capture					
Expected Test Results	T1647: An error “DRGARE object includes VERDAT” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1650	Type	E
S-58 Description	For each SWPARE object where VERDAT is present.				
Message	SWPARE object includes VERDAT.				
Solution	Remove VERDAT.	Conformity	5.6		
Test Case No. 1	SWPARE (A) with attribute VERDAT.				
Location	32°30'42.87"S 60°41'01.70"E	S57 Encoding	SWPARE (A)	DRVAL1=1 VERDAT=3	

Screen Capture					
Expected Test Results	T1650: An error "SWPARE object includes VERDAT" must be triggered.				
Secondary Errors	T1503: An additional error "Value of VERDAT without corresponding vertical distance value" must be triggered. T0547: An additional error "Attribute not permitted on object class" must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1653	Type	E
S-58 Description	For each SWPARE object WITHIN an M_QUAL object where SOUACC is not Null AND SOUACC on the M_QUAL object relates to all SOUNDINGS WITHIN it.				
Message	SOUACC on M_QUAL object does not apply to all SOUNDINGS it covers.				
Solution	Amend SOUACC value on M_QUAL or remove.		Conformity	5.6	
Test Case No. 1	SWPARE (A) and M_QUAL with attribution encoded.				
Location	32°30'56.72"S 60°43'16.00"E	S57 Encoding	SWPARE (A) M_QUAL (A) SOUNDG	DRVAL1=2 SOUACC=1 CATZOC=2 DRVAL1=2 SOUACC=10 SOUACC=1	
Screen Capture					
Expected Test Results	T1653: An error "SOUACC on M_QUAL object does not apply to all SOUNDINGS it covers" must be triggered.				

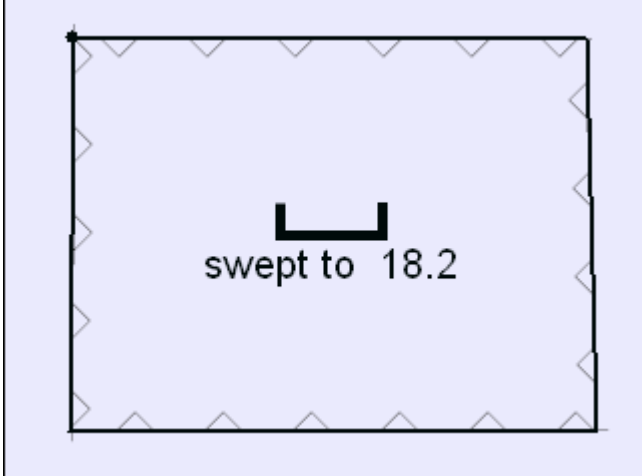
Secondary Errors	T1530: An additional error “SOUACC value on object is equivalent to value used on the M_QUAL it lies WITHIN” must be triggered. T1531: An additional error “Value of POSACC, SOUACC, QUASOU or TECSOU on object is equivalent to or degrades the accuracy of CATZOC on the M_QUAL it lies WITHIN” must be triggered.				
Dataset Name	AA500017	S-58 test No.	T1654	Type	E
S-58 Description	For each SWPARE object where TECSOU is not Null AND is not (6) [swept by wire-drag] , (8) [swept by vertical acoustic system] or (13) [swept by side-scan sonar].				
Message	TECSOU on SWPARE object not an allowable value.				
Solution	Ensure value of TECSOU is an allowable value.	Conformity	5.6		
Test Case No. 1	SWPARE (A) with attribute TECSOU=1 SWPARE (A) with attribute TECSOU=2 SWPARE (A) with attribute TECSOU=3 SWPARE (A) with attribute TECSOU=4 SWPARE (A) with attribute TECSOU=5 SWPARE (A) with attribute TECSOU=7 SWPARE (A) with attribute TECSOU=9 SWPARE (A) with attribute TECSOU=10 SWPARE (A) with attribute TECSOU=11 SWPARE (A) with attribute TECSOU=12 SWPARE (A) with attribute TECSOU=14				
Location	32°30'03.73"S 60°41'04.53"E	S57 Encoding	SWPARE (A)	DRVAL1=1 TECSOU=1,2,3,4,5,7,9,10,11,12 or 14	
Screen Capture					
Expected Test Results	T1654: 11 errors “TECSOU on SWPARE object not an allowable value” must be triggered.				
Secondary Errors	T2000: 11 additional errors “Attribute value which is not allowed use on an object” must be triggered.				
Test Case No. 2	SWPARE (A) with attribute TECSOU=6 SWPARE (A) with attribute TECSOU=8 SWPARE (A) with attribute TECSOU=13				
Location	32°30'13.30"S 60°41'03.49"E	S57 Encoding	SWPARE (A)	DRVAL1=1 TECSOU=6,8 or 13	

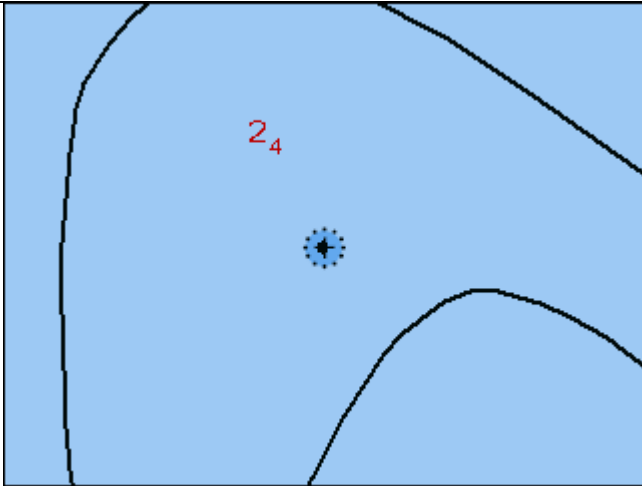
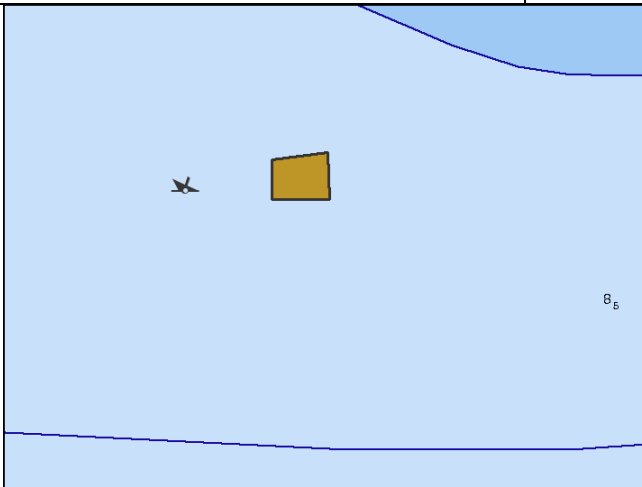
<p>Screen Capture</p>		
<p>Expected Test Results</p>	<p>T1654: 3 errors "TECSOU on SWPARE object not an allowable value" must not be triggered.</p>	
<p>Secondary Errors</p>	<p>None</p>	

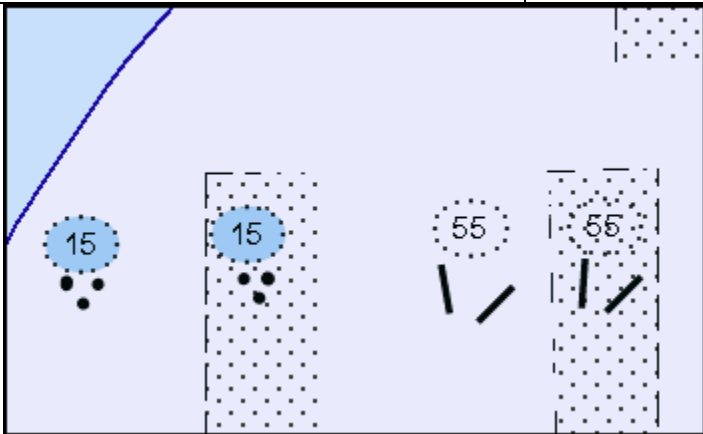
2.18. Test Dataset: AA500018

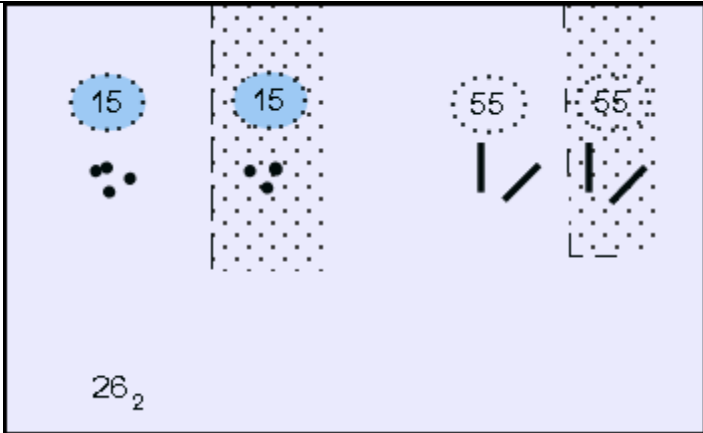
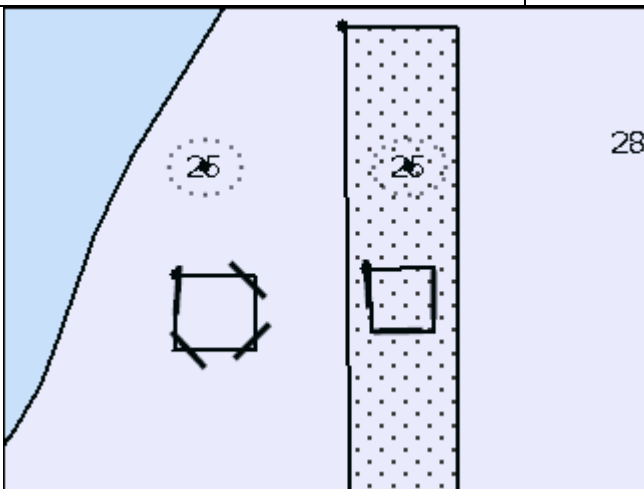
List of S-58 Recommended ENC Validation Checks covered in this section:

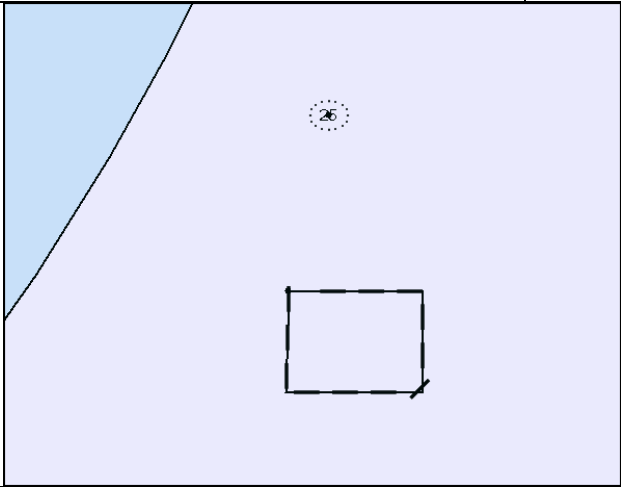
S-58 Test	Description
1655	For each SWPARE object which EQUALS an M_QUAL object where POSACC AND SOUACC is encoded.
1656	For each UWTROC object where VERDAT is present.
1658	For each WRECKS object where any of VERDAT, VERACC and VERLEN are present.
1659	For each WRECKS object where VALSOU is not Null AND EXPSOU is equal to (1) or is not present AND VALSOU is less than or equal to the DRVAL1 OR greater than DRVAL2 of the DEPARE OR DRGARE object it is WITHIN AND DRVAL1 AND DRVAL2 are not Null AND not equal.
1660	For each WRECKS object where VALSOU is not Null AND EXPSOU is equal to (2) AND the value of VALSOU is greater than the DRVAL1 of the DEPARE or DRGARE object it is WITHIN AND DRVAL1 is not Null.
1661a	For each WRECKS object where VALSOU is not Null AND EXPSOU = (3) AND the VALSOU is less than or equal to DRVAL2 of the DEPARE it is WITHIN where DRVAL2 is not unknown.
1661b	For each WRECKS object where EXPSOU = (3) AND the VALSOU is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.
1661c	For each WRECKS object where EXPSOU = (3) where the VALSOU is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.
1664	For each OBSTRN object where VERACC or VERDAT is present.
1665	For each OBSTRN object where VALSOU is not Null AND EXPSOU is equal to (1) or not present AND VALSOU is less than or equal to DRVAL1 OR greater than DRVAL2 of the DEPARE or DRGARE object it is WITHIN where DRVAL1 AND DRVAL2 are not Null.
1666	For each OBSTRN object where VALSOU is not Null AND EXPSOU is equal to (2) AND the value of VALSOU is greater than the DRVAL1 of the DEPARE or DRGARE object it is WITHIN AND DRVAL1 is not Null.
1667a	For each OBSTRN object where VALSOU is not Null AND EXPSOU = (3) AND the VALSOU is less than or equal to DRVAL2 of the DEPARE it is WITHIN where DRVAL2 is not unknown.
1667b	For each OBSTRN object where EXPSOU = (3) AND the VALSOU is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.
1667c	For each OBSTRN object where EXPSOU = (3) where the VALSOU is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.
1668	For each OBSTRN object where PRODCAT is present AND CATOBS is not (2) [wellhead] or (3) [diffuser].
1675	For each SNDWAV object where VERACC is present.
1677	For each MORFAC object where BOYSHP is present AND CATMOR is not equal to (7) [mooring buoy].
1678	For each RECTRC object where VERDAT OR DRVAL2 are present.
1689	For each TSSCRS object which OVERLAPS a TSEZNE object.
1690	For each TSSRON object which OVERLAPS a TSEZNE object.
1691	For each DWRTPT object where VERDAT or DRVAL2 are present.
1695	For each DWRTCL object where VERDAT or DRVAL2 are present.
1697	For each RCRTCL where TRAFIC equals (1), (2) or (3) AND the direction of digitizing is not 5 degrees greater than or less than the value of ORIENT.

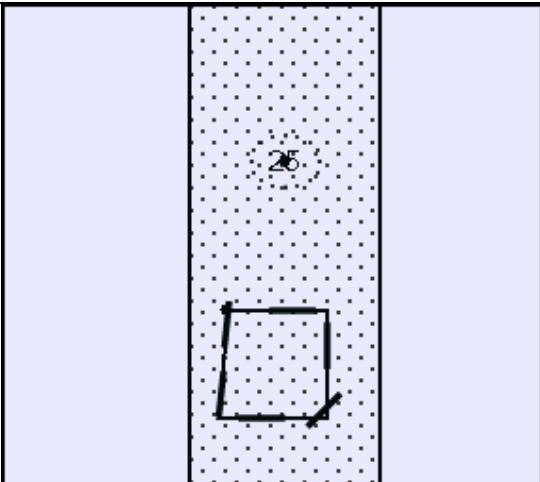
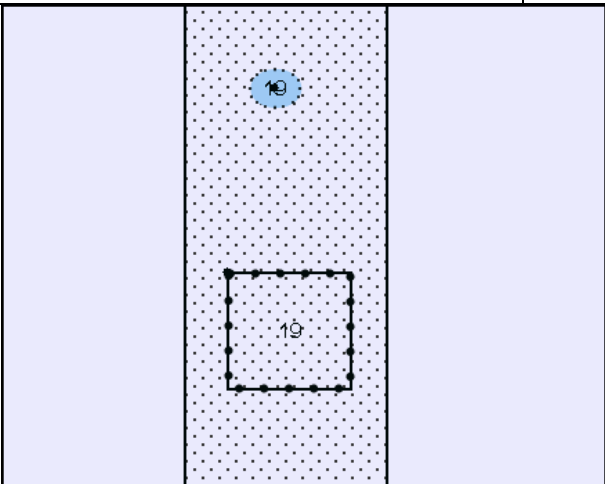
Dataset Name	AA500018	S-58 test No.	T1655	Type	E
S-58 Description	For each SWPARE object which EQUALS an M_QUAL object where POSACC AND SOUACC is encoded.				
Message	POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object.				
Solution	Remove POSACC.	Conformity	5.6		
Test Case No. 1	SWPARE sharing geometry with M_QUAL that is attributed with POSACC and SOUACC.				
Location	32°30'36.02"S 60°45'57.44"E	S57 Encoding	SWPARE (A) M_QUAL (A)	DRVAL1=18.2 POSACC=1 SOUACC=1	
Screen Capture					
Expected Test Results	T1655: 2 errors “POSACC and SOUACC encoded on M_QUAL object which covers SWPARE object” must be triggered.				
Secondary Errors	T1525: An additional error “M_QUAL object where DRVAL1 and POSACC are populated” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1656	Type	E
S-58 Description	For each UWTROC object where VERDAT is present.				
Message	VERDAT present on UWTROC object.				
Solution	Remove VERDAT.	Conformity	6.1.2		
Test Case No. 1	UWTROC with attribute VERDAT.				
Location	32°30'53.69"S 60°44'40.05"E	S57 Encoding	UWTROC (P)	VERDAT=1	

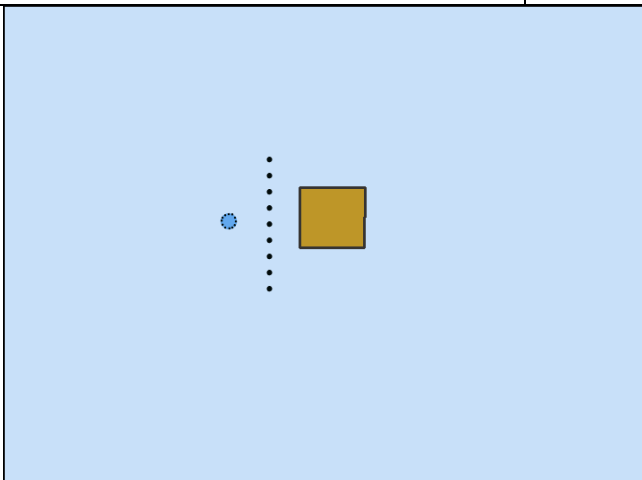
Screen Capture					
Expected Test Results	T1656: An error “VERDAT present on UWTROC object” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1658	Type	E
S-58 Description	For each WRECKS object where any of VERDAT, VERACC and VERLEN are present.				
Message	VERDAT, VERACC or VERLEN present on WRECKS object.				
Solution	Remove VERDAT, VERACC or VERLEN.		Conformity	6.2.1	
Test Case No. 1	WRECKS (A, P) with attributes VERDAT, VERACC and VERLEN.				
Location	32°30'58.48"S 60°44'49.88"E	S57 Encoding	WRECKS (A, P)	VERDAT=1 VERACC=1 VERLEN=1	
Screen Capture					
Expected Test Results	T1658: 6 errors “VERDAT, VERACC or VERLEN present on WRECKS object” must be triggered.				
Secondary Errors	T1546: 2 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				

Dataset Name	AA500018	S-58 test No.	T1659	Type	E
S-58 Description	For each WRECKS object where VALSOU is not Null AND EXPSOU is equal to (1) or is not present AND VALSOU is less than or equal to the DRVAL1 OR greater than DRVAL2 of the DEPARE OR DRGARE object it is WITHIN AND DRVAL1 AND DRVAL2 are not Null AND not equal.				
Message	VALSOU on WRECKS object with EXPSOU = 1 or not present and is outside of the range of the underlying depth area.				
Solution	Populate an appropriate value of EXPSOU.		Conformity	6.2.1	
Test Case No. 1	WRECKS (A, P) with attributes VALSOU and EXPSOU. VALSOU is less than the DRVAL1 and greater than the DRVAL2 of the overlapping DEPARE (A) and DRGARE.				
Location	32°30'57.39"S 60°45'05.14"E	S57 Encoding	WRECKS (A,P) DRGARE (A) DEPARE (A)	EXPSOU=1 VALSOU=15 & 55 DRVAL1=20 DRVAL2=40 DRVAL1=18.2 DRVAL2=54.8	
Screen Capture					
Expected Test Results	T1659: 8 errors “VALSOU on WRECKS object with EXPSOU = 1 or not present and is outside of the range of the underlying depth area” must be triggered.				
Secondary Errors	T1662: 2 additional errors “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				
Test Case No. 2	WRECKS (A, P) with attribute VALSOU. VALSOU is less than the DRVAL1 and greater than the DRVAL2 of the overlapping DEPARE (A) and DRGARE.				
Location	32°31'01.09"S 60°45'05.65"E	S57 Encoding	WRECKS (A,P) DRGARE (A) DEPARE (A)	VALSOU=15 & 55 DRVAL1=20 DRVAL2=40 DRVAL1=18.2 DRVAL2=54.8	

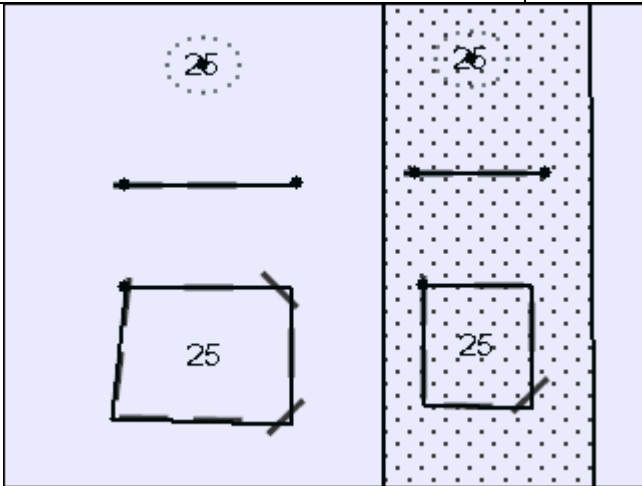
Screen Capture					
Expected Test Results	T1659: 8 errors “VALSOU on WRECKS object with EXPSOU = 1 or not present and is outside of the range of the underlying depth area” must be triggered.				
Secondary Errors	T1662: 2 additional errors “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1660	Type	E
S-58 Description	For each WRECKS object where VALSOU is not Null AND EXPSOU is equal to (2) AND the value of VALSOU is greater than the DRVAL1 of the DEPARE or DRGARE object it is WITHIN AND DRVAL1 is not Null.				
Message	WRECKS object where EXPSOU equals (2) but with a VALSOU greater than the underlying DRVAL1.				
Solution	Populate appropriate value of EXPSOU.		Conformity	6.2.1	
Test Case No. 1	WRECKS (A, P) with attributes VALSOU and EXPSOU. VALSOU is greater than the DRVAL1 of the overlapping DEPARE (A) and DRGARE				
Location	32°30'52.31"S 60°45'07.62"E	S57 Encoding	DRGARE (A) WRECKS (A,P) DEPARE (A)	DRVAL1=20 EXPSOU=2 VALSOU=25 DRVAL1=18.2 DRVAL2=54.8	
Screen Capture					
Expected Test Results	T1660: 4 errors “WRECKS object where EXPSOU equals (2) but with a VALSOU greater than the underlying DRVAL1” must be triggered.				
Secondary Errors	T1662: 2 additional errors “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				

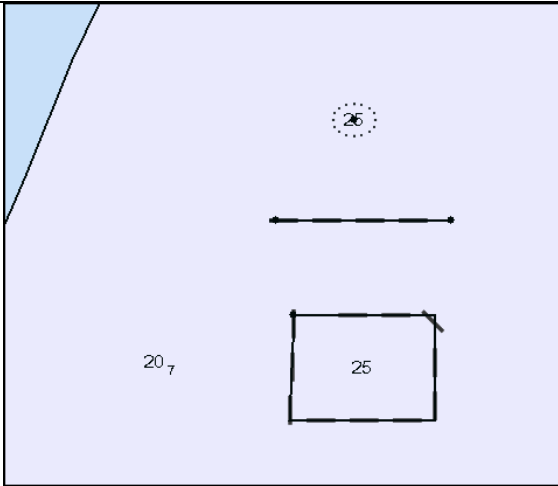
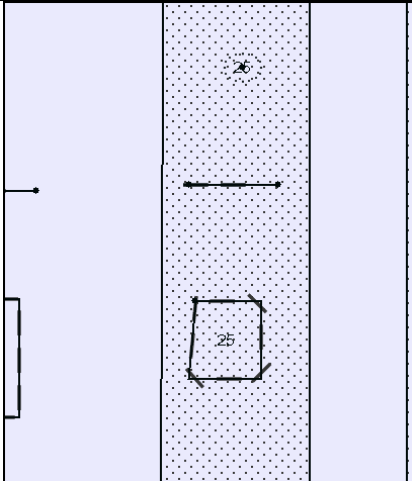
Dataset Name	AA500018	S-58 test No.	T1661a	Type	E
S-58 Description	For each WRECKS object where VALSOU is not Null AND EXPSOU = (3) AND the VALSOU is less than or equal to DRVAL2 of the DEPARE it is WITHIN where DRVAL2 is not unknown.				
Message	WRECKS with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.2.1	
Test Case No. 1	WRECKS (A, P) with VALSOU less than the DRVAL2 of the overlapping DEPARE (A), where both DRVAL1 and DRVAL2 attributes are encoded.				
Location	32°30'39.30"S 60°45'13.60"E	S57 Encoding	WRECKS (A, P) DEPARE (A)	EXPSOU=3 VALSOU=25 DRVAL1=18.2 DRVAL2=54.8	
Screen Capture					
Expected Test Results	T1661a: 2 errors “WRECKS with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500018	S-58 test No.	T1661b	Type	E
S-58 Description	For each WRECKS object where EXPSOU = (3) AND the VALSOU is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.				
Message	WRECKS with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.1.2	
Test Case No. 1	WRECKS (A, P) with VALSOU less than the DRVAL1 of the overlapping DRGARE where only DRVAL1 & DRVAL2 attributes are encoded.				
Location	32°30'39.31"S 60°45'16.84"E	S57 Encoding	WRECKS (A, P) DRGARE (A)	EXPSOU=3 VALSOU=25 DRVAL1=20 DRVAL2=40	

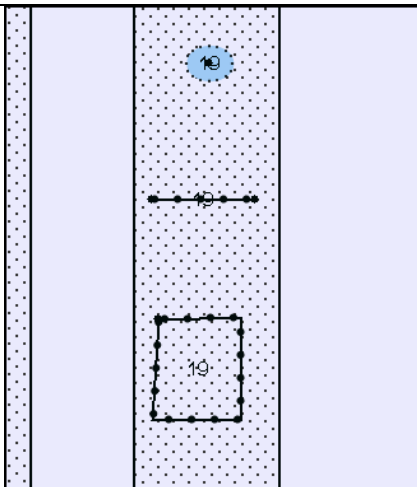
Screen Capture					
Expected Test Results	T1661b: 2 errors “WRECKS with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE” must be triggered.				
Secondary Errors	T1662: An additional error “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1661c	Type	E
S-58 Description	For each WRECKS object where EXPSOU = (3) where the VALSOU is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.				
Message	WRECKS with EXPSOU=(3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.1.2	
Test Case No. 1	WRECKS (A, P) with VALSOU less than the DRVAL1 of the overlapping DRGARE, where only DRVAL1 is encoded.				
Location	32°30'39.22"S 60°45'19.75"E	S57 Encoding	WRECKS (A, P) DRGARE (A)	EXPSOU=3 VALSOU=19 DRVAL1=20	
Screen Capture					
Expected Test Results	T1661c: 2 errors “WRECKS with EXPSOU= (3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated” must be triggered.				
Secondary Errors	T1662: An additional error “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				

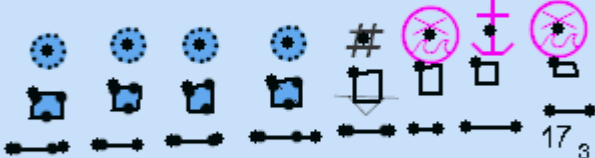
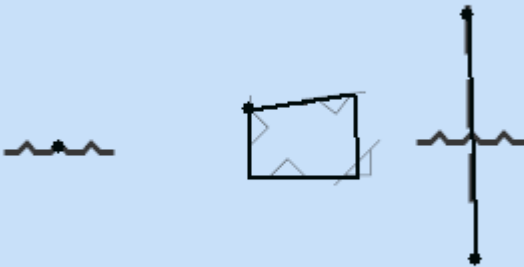
Dataset Name	AA500018	S-58 test No.	T1664	Type	E
S-58 Description	For each OBSTRN object where VERACC or VERDAT is present.				
Message	VERACC or VERDAT present on OBSTRN object.				
Solution	Remove VERACC or VERDAT.	Conformity	6.2.2		
Test Case No. 1	OBSTRN (A, L, P) with attributes VERACC and VERDAT.				
Location	32°31'11.72"S 60°43'39.19"E	S57 Encoding	OBSTRN (A, L, P)	VERACC=1 VERDAT=1	
Screen Capture					
Expected Test Results	T1664: 6 errors “VERACC or VERDAT present on OBSTRN object” must be triggered.				
Secondary Errors	T1546: 3 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered. T0547: 3 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1665	Type	E
S-58 Description	For each OBSTRN object where VALSOU is not Null AND EXPSOU is equal to (1) or not present AND VALSOU is less than or equal to DRVAL1 OR greater than DRVAL2 of the DEPART or DRGARE object it is WITHIN where DRVAL1 AND DRVAL2 are not Null				
Message	OBSTRN object with EXPSOU = (1) or not present which is outside of the range of DRVAL1 and DRVAL2.				
Solution	Populate an appropriate value of EXPSOU.	Conformity	6.2.2		
Test Case No. 1	OBSTRN (A, L, P) with attributes VALSOU and EXPSOU. VALSOU is less than the DRVAL1 and greater than the DRVAL2 of the overlapping DEPART (A) and DRGARE.				
Location	32°31'11.05"S 60°44'52.32"E	S57 Encoding	OBSTRN (A, L, P) DRGARE (A) DEPART (A)	EXPSOU=1 VALSOU=15 & 55 DRVAL1=20 DRVAL2=40 DRVAL1=18.2 DRVAL2=54.8	

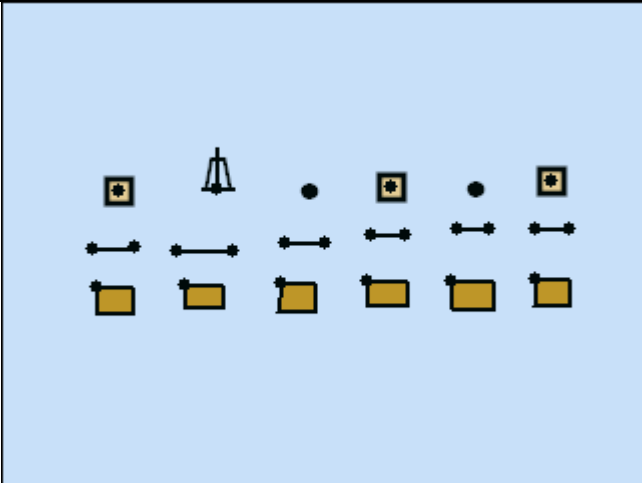
Screen Capture					
Expected Test Results	T1665: 12 errors "OBSTRN object with EXPSON = (1) or not present which is outside of the range of DRVAL1 and DRVAL2" must be triggered				
Secondary Errors	T1662: 2 additional errors "Area WRECKS or OBSTRN object not WITHIN a DEPART, LNDARE or UNSARE type object" must be triggered.				
Test Case No. 2	OBSTRN (A, L, P) with VALSOU less than DRVAL1 and greater than DRVAL2 of the overlapping DEPART (A) and DRGARE.				
Location	32°31'14.75"S 60°44'50.31"E	S57 Encoding	OBSTRN (A, L, P) DRGARE (A) DEPART (A)	VALSOU=15 & 55 DRVAL1=20 DRVAL2=40 DRVAL1=18.2 DRVAL2=54.8	
Screen Capture					
Expected Test Results	T1665: 12 errors "OBSTRN object with EXPSON = (1) or not present which is outside of the range of DRVAL1 and DRVAL2" must be triggered				
Secondary Errors	T1662: 2 additional errors "Area WRECKS or OBSTRN object not WITHIN a DEPART, LNDARE or UNSARE type object" must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1666	Type	E
S-58 Description	For each OBSTRN object where VALSOU is not Null AND EXPSON is equal to (2) AND the value of VALSOU is greater than the DRVAL1 of the DEPART or DRGARE object it is WITHIN AND DRVAL1 is not Null.				
Message	OBSTRN object where EXPSON equals (2) but with a VALSOU greater than the underlying DRVAL1.				
Solution	Populate appropriate value of EXPSON.		Conformity	6.2.2	
Test Case No. 1	OBSTRN (A, L, P) with attributes VALSOU and EXPSON. VALSOU is greater than DRVAL1 of the				

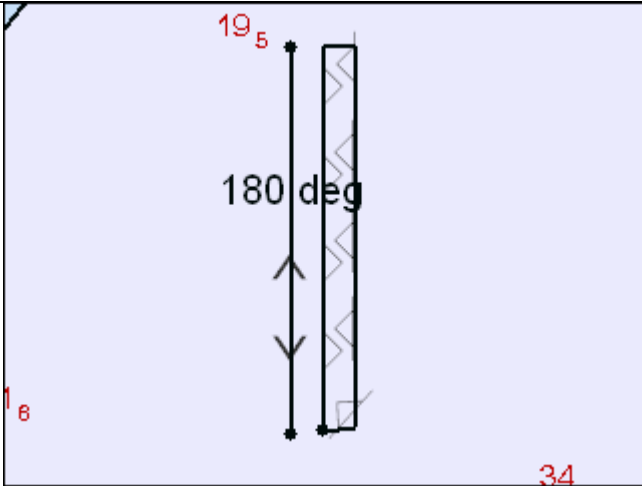
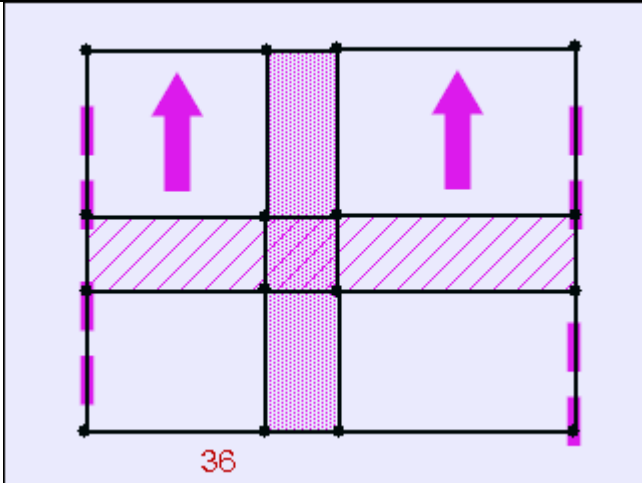
	overlapping DEPART (A) and DRGARE				
Location	32°30'45.90"S 60°45'13.04"E	S57 Encoding	OBSTRN (A, L, P) DRGARE (A) DEPART (A)	VALSOU=25 EXPSOU=2 DRVAL1=20 DRVAL1=18.2 DRVAL2=54.8	
Screen Capture					
Expected Test Results	T1666: 6 errors "OBSTRN object where EXPSOU equals (2) but with a VALSOU greater than the underlying DRVAL1" must be triggered.				
Secondary Errors	T1662: An additional error "Area WRECKS or OBSTRN object not WITHIN a DEPART, LNDARE or UNSARE type object" must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1667a	Type	E
S-58 Description	For each OBSTRN object where VALSOU is not Null AND EXPSOU = (3) AND the VALSOU is less than or equal to DRVAL2 of the DEPART it is WITHIN where DRVAL2 is not unknown.				
Message	OBSTRN with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPART.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.2.2	
Test Case No. 1	OBSTRN (A, L, P) with VALSOU less than DRVAL2 of the overlapping DEPART (A), when both DRVAL1 and DRVAL2 attributes are encoded.				
Location	32°30'31.69"S 60°45'20.37"E	S57 Encoding	OBSTRN (A, L, P) DEPART (A)	VALSOU=25 EXPSOU=3 DRVAL1=18.2 DRVAL2=54.8	

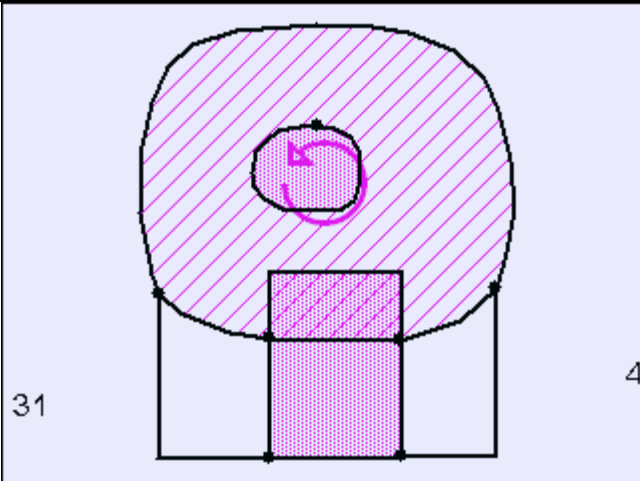
Screen Capture					
Expected Test Results	T1667a: 3 errors “OBSTRN with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500018	S-58 test No.	T1667b	Type	E
S-58 Description	For each OBSTRN object where EXPSOU = (3) AND the VALSOU is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.				
Message	OBSTRN with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.2.2	
Test Case No. 1	OBSTRN (A, L, P) with VALSOU less than DRVAL1 of the overlapping DRGARE, when only DRVAL1 & DRVAL2 are encoded.				
Location	32°30'32.58"S 60°45'23.01"E	S57 Encoding	OBSTRN (A, L, P) DRGARE (A)	VALSOU=25 EXPSOU=3 DRVAL1=20 DRVAL2=40	
Screen Capture					
Expected Test Results	T1667b: 3 errors “OBSTRN with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE” must be triggered.				
Secondary Errors	T1662: An additional error “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				

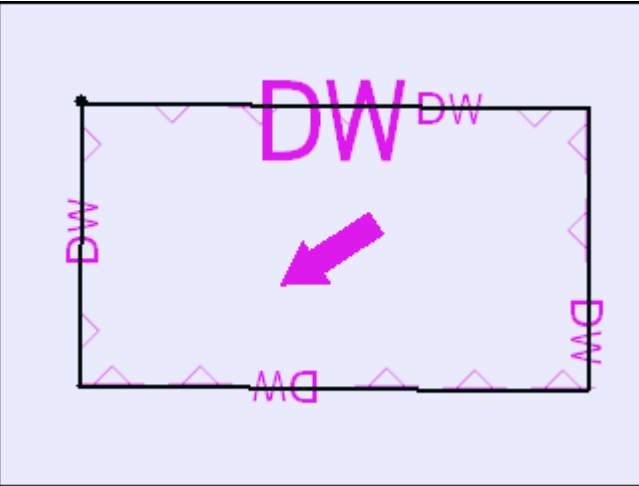
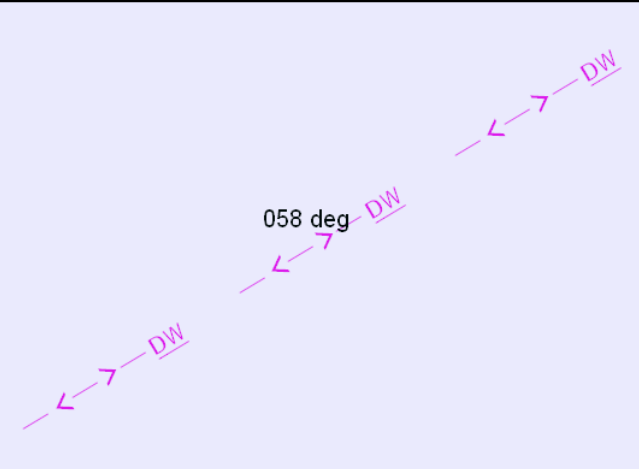
Dataset Name	AA500018	S-58 test No.	T1667c	Type	E
S-58 Description	For each OBSTRN object where EXPSOU = (3) where the VALSOU is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.				
Message	OBSTRN with EXPSOU= (3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.2.2	
Test Case No. 1	OBSTRN (A, L, P) with VALSOU less than DRVAL1 of the overlapping DRGARE, when only DRVAL1 is encoded.				
Location	32°30'31.96"S 60°45'25.01"E	S57 Encoding	OBSTRN (A, L, P) DRGARE (A)	VALSOU=19 EXPSOU=3 DRVAL1=20	
Screen Capture					
Expected Test Results	T1667c: 3 errors “OBSTRN with EXPSOU= (3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated” must be triggered.				
Secondary Errors	T1662: An additional error “Area WRECKS or OBSTRN object not WITHIN a DEPARE, LNDARE or UNSARE type object” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1668	Type	W
S-58 Description	For each OBSTRN object where PRODC T is present AND CATOBS is not (2) [wellhead] or (3) [diffuser].				
Message	OBSTRN object with a value for PRODC T without a logical value of CATOBS.				
Solution	Remove value of PRODC T or populate logical value of CATOBS.		Conformity	Logical consistency	
Test Case No. 1	OBSTRN (A, L, P) with attributes CATOBS and PRODC T.				
Location	32°31'00.78"S 60°43'40.35"E	S57 Encoding	OBSTRN (A, L, P)	PRODC T=1 CATOBS=1,4,5, 6,7,8,9 or 10	

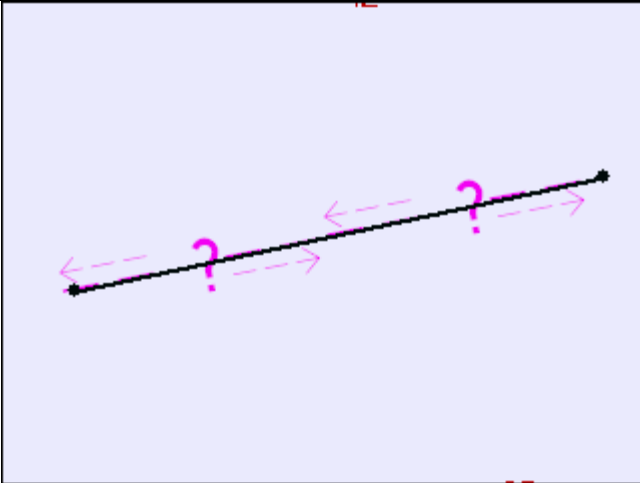
Screen Capture						
Expected Test Results	T1668: 24 warnings “OBSTRN object with a value for PRODCY without a logical value of CATOBS” must be triggered					
Secondary Errors	None					
Dataset Name	AA500018	S-58 test No.	T1675	Type	E	
S-58 Description	For each SNDWAV object where VERACC is present.					
Message	VERACC present on SNDWAV object.					
Solution	Remove VERACC.	Conformity	7.2.1			
Test Case No. 1	SNDWAV (A, L, P) with attribute VERACC.					
Location	32°30'44.77"S 60°43'40.00"E	S57 Encoding	SNDWAV (A, L, P)	VERACC=1		
Screen Capture						
Expected Test Results	T1675: 3 errors “VERACC present on SNDWAV object” must be triggered.					
Secondary Errors	T1546: 3 additional errors “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered. T0547: 3 additional errors “Attribute not permitted on object class” must be triggered.					
Dataset Name	AA500018	S-58 test No.	T1677	Type	E	

S-58 Description	For each MORFAC object where BOYSHP is present AND CATMOR is not equal to (7) [mooring buoy].				
Message	MORFAC with BOYSHP without CATMOR = (7) [mooring buoy].				
Solution	Populated CATMOR = (7) or remove BOYSHP.			Conformity	4.6.7.1
Test Case No. 1	MORFAC (A, L, P) with attributes BOYSHP and CATMOR.				
Location	32°30'51.57"S 60°43'45.69"E	S57 Encoding	MORFAC (A, L, P)	BOYSHP=7 CATMOR=1,2,3,4,5 or 6	
Screen Capture					
Expected Test Results	T1677: 18 errors “MORFAC with BOYSHP without CATMOR = (7) [mooring buoy]” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500018	S-58 test No.	T1678	Type	E
S-58 Description	For each RECTRC object where VERDAT OR DRVAL2 are present.				
Message	VERDAT or DRVAL2 present on RECTRC object.				
Solution	Remove VERDAT or DRVAL2.			Conformity	10.1.1
Test Case No. 1	RECTRC (A, L) with attributes VERDAT and DRVAL2.				
Location	32°31'09.22"S 60°44'58.87"E	S57 Encoding	RECTRC (A, L)	VERDAT=1 DRVAL2=25	

Screen Capture					
Expected Test Results	T1678: 4 errors “VERDAT or DRVAL2 present on RECTRC object” must be triggered.				
Secondary Errors	T1503: 2 additional errors “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1689	Type	E
S-58 Description	For each TSSCRS object which OVERLAPS a TSEZNE object.				
Message	TSSCRS object overlaps TSEZNE object.				
Solution	Amend objects to remove overlap.	Conformity	10.2.1.5		
Test Case No. 1	TSSCRS overlapping with TSEZNE.				
Location	32°31'08.01"S 60°45'30.79"E	S57 Encoding	TSSCRS (A) TSEZNE (A)		
Screen Capture					
Expected Test Results	T1689: An error “TSSCRS object overlaps TSEZNE object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500018	S-58 test No.	T1690	Type	E

S-58 Description	For each TSSRON object which OVERLAPS a TSEZNE object.				
Message	TSSRON object overlaps TSEZNE object.				
Solution	Amend objects to remove overlap.	Conformity	10.2.1.6		
Test Case No. 1	TSSRON (A) overlapping with TSEZNE (A).				
Location	32°30'45.03"S 60°45'55.25"E	S57 Encoding	TSSRON (A) TSEZNE (A)		
Screen Capture					
Expected Test Results	T1690: An error “TSSRON object overlaps TSEZNE object” must be triggered.				
Secondary Errors	T1687: An additional error “TSEZNE does not separate appropriate TSS objects” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1691	Type	E
S-58 Description	For each DWRTPT object where VERDAT or DRVAL2 are present.				
Message	DWRTPT object carries VERDAT or DRVAL2 attribute.				
Solution	Remove inappropriate attribute value.	Conformity	10.2.2.1		
Test Case No. 1	DWRTPT (A) with attributes VERDAT and DRVAL2.				
Location	32°30'23.94"S 60°46'20.78"E	S57 Encoding	DWRTPT (A)	VERDAT=1 DRVAL2=25	

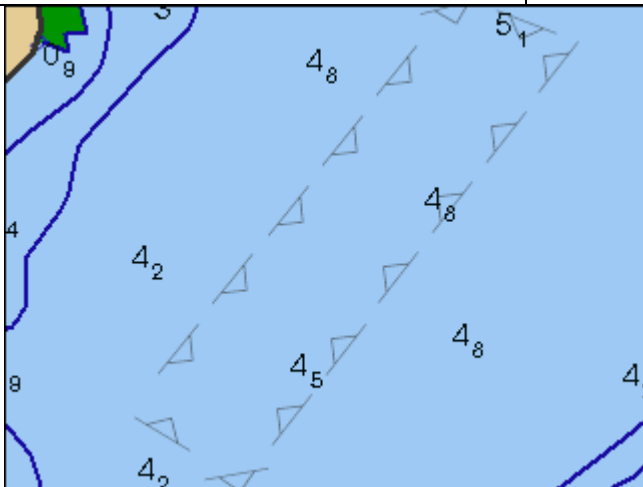
Screen Capture					
Expected Test Results	T1691: 2 errors “DWRTPT object carries VERDAT or DRVAL2 attribute” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1695	Type	E
S-58 Description	For each DWRTCL object where VERDAT or DRVAL2 are present.				
Message	VERDAT or DRVAL2 present for DWRTCL object.				
Solution	Remove VERDAT or DRVAL2.		Conformity	10.2.2.2	
Test Case No. 1	DWRTCL with attributes VERDAT and DRVAL2.				
Location	32°30'45.86"S 60°45'25.18"E	S57 Encoding	DWRTCL (L)	VERDAT=1 DRVAL2=25	
Screen Capture					
Expected Test Results	T1695: 2 errors “VERDAT or DRVAL2 present for DWRTCL object” must be triggered.				
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500018	S-58 test No.	T1697	Type	E

S-58 Description	For each RCRTCL object where VERDAT or DRVAL2 are present.			
Message	RCRTCL has VERDAT or DRVAL2.			
Solution	Remove VERDAT or DRVAL2.	Conformity	10.2.4	
Test Case No. 1	RCRTCL with attributes VERDAT and DRVAL2.			
Location	32°31'07.52"S 60°45'48.69"E	S57 Encoding	RCRTCL (L)	VERDAT=1 DRVAL2=40
Screen Capture				
Expected Test Results	T1697: 2 errors “RCRTCL has VERDAT or DRVAL2” must be triggered.			
Secondary Errors	T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered. T0547: An additional error “Attribute not permitted on object class” must be triggered.			

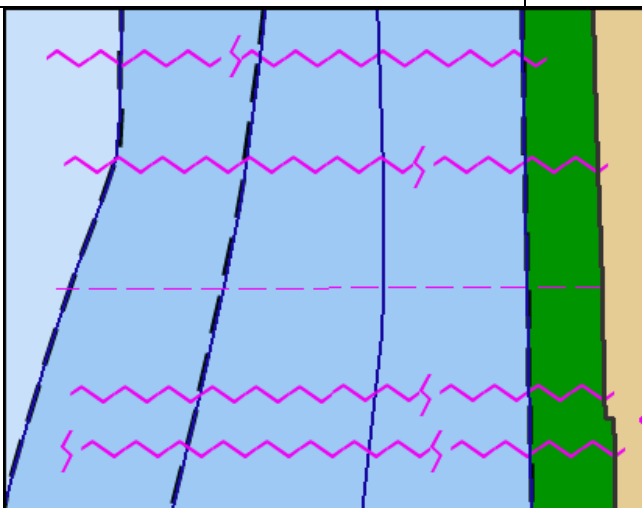
2.19. Test Dataset: AA500019

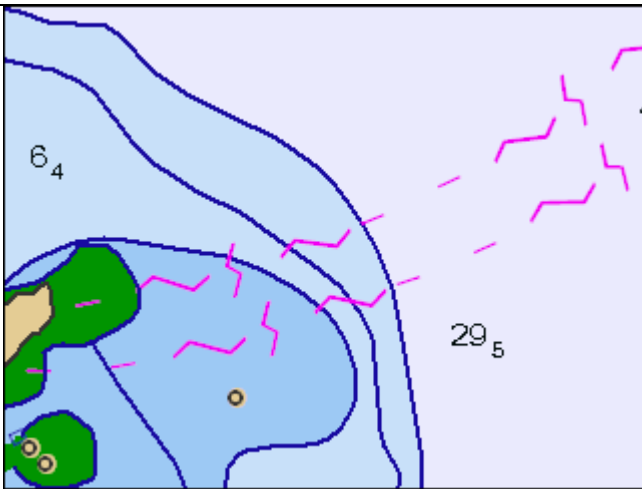
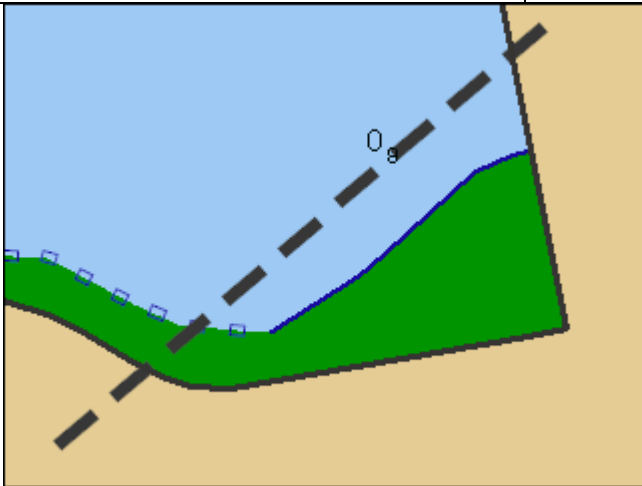
List of S-58 Recommended ENC Validation Checks covered in this section:

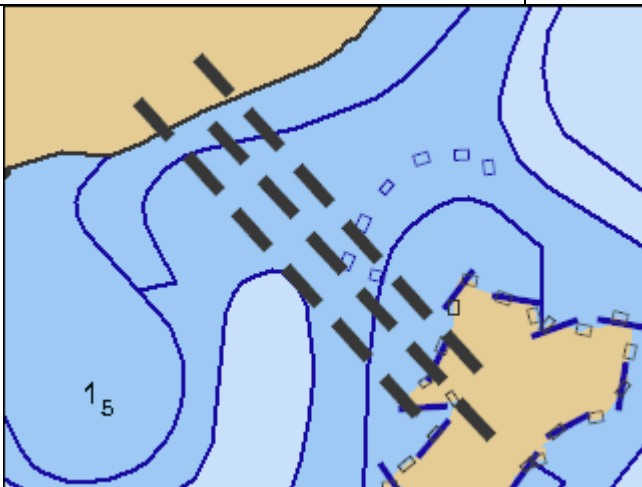
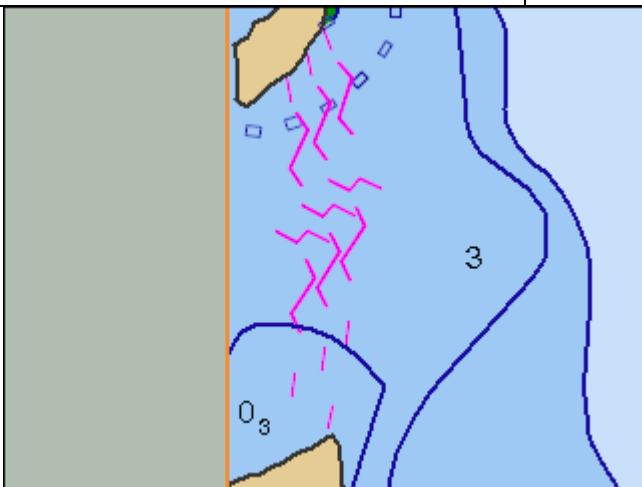
S-58 Test	Description
1699	For each FAIRWY object where VERDAT is present.
1700	For each TESARE object which OVERLAPS an EXEZNE object.
1701	For each CBLSUB object where VERDAT is present.
1702	For each object of type CBLSUB where STATUS equals (4) [not in use] AND CATCBL is not Null.
1703	For each object of type CBLSUB where CATCBL = (3) [transmission line].
1704	For each CBLOHD object where VERDAT is present and VERCLR and VERCSA are not present.
1706	For each CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not Null AND is not (1) [under construction] or (5) [planned construction].
1707	For each object of type CBLARE where CATCBL = (3) [transmission line] or (6) [mooring cable/chain].
1708	For each PIPSOL object where VERDAT OR VERACC are present.
1709	For each PIPSOL object where STATUS equals (4) [not in use] AND CATPIP is present.
1712	For each PIPOHD object where STATUS equals (4) [not in use] AND CATPIP or PRODCAT are present.
1713	For each PIPARE object where CONDTN is present.
1715	For each OFSPLF object where VERDAT OR VERACC are present.
1716	For each OSPARE object where VERACC is present.
1717	For each FSHFAC object where VERACC is present.
1718	For each MARCUL object where VERDAT is present.
1720	For each ICEARE object where VERDAT OR VERACC are present.
1723	For each point object forming the same navigational aid which do not point to the same spatial object.
1727	For each M_NSYS object where MARSYS is not Null which OVERLAPS an M_NSYS object where MARSYS is not Null.
1728	For each M_NSYS object where ORIENT is not Null which OVERLAPS an M_NSYS object where ORIENT is not Null.

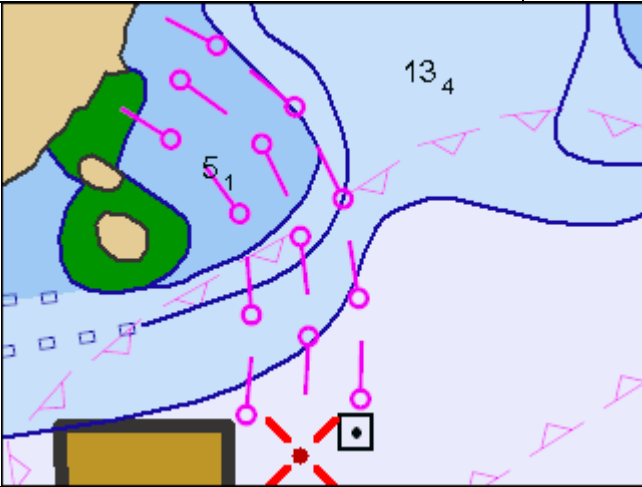
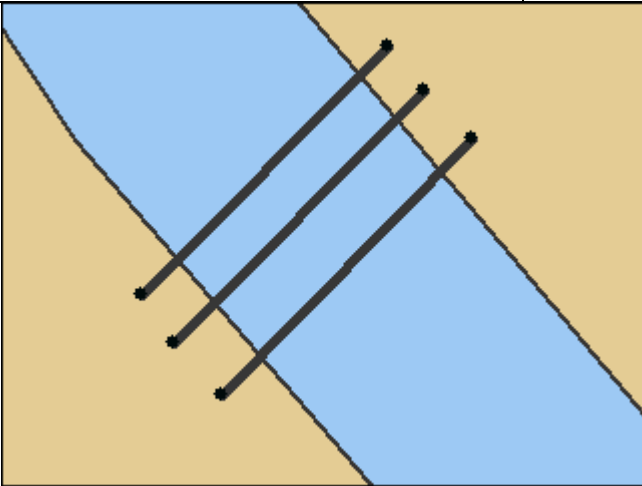
Dataset Name	AA500019	S-58 test No.	T1699	Type	E
S-58 Description	For each FAIRWY object where VERDAT is present.				
Message	VERDAT present on FAIRWY object.				
Solution	Remove VERDAT.	Conformity	10.4		
Test Case No. 1	FAIRWY (A) with attribute VERDAT.				
Location	32°30'17.01"S 60°48'00.87"E	S57 Encoding	FAIRWY (A)	VERDAT=1	
Screen Capture					
Expected Test Results	T1699: An error “VERDAT present on FAIRWY object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1503: An additional error “Value of VERDAT without corresponding vertical distance value” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1700	Type	E
S-58 Description	For each TESARE object which OVERLAPS an EXEZNE object.				
Message	TESARE object overlaps EXEZNE object.				
Solution	Amend limits to remove overlap.	Conformity	11.2		
Test Case No. 1	TESARE (A) overlapping EXEZNE (A).				
Location	32°29'44.73"S 60°48'15.84"E	S57 Encoding	TESARE (A) EXEZNE (A)		

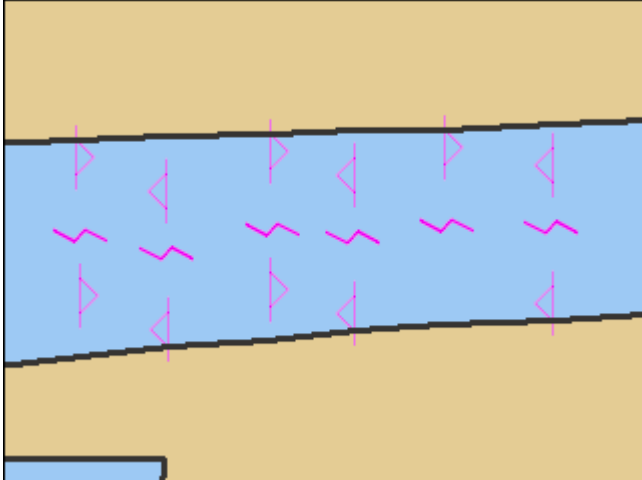
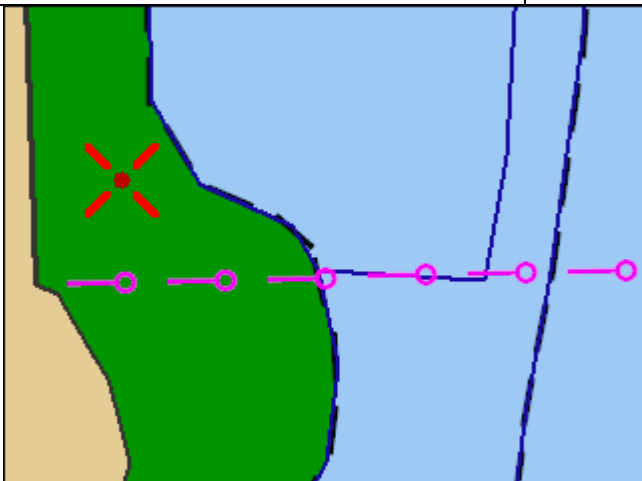
Screen Capture						
Expected Test Results	T1700: An error "TESARE object overlaps EXEZNE object" must be triggered.					
Secondary Errors	None					
Dataset Name	AA500019	S-58 test No.	T1701	Type	E	
S-58 Description	For each CBLSUB object where VERDAT is present.					
Message	VERDAT present on CBLSUB.					
Solution	Remove VERDAT.			Conformity	11.5.1	
Test Case No. 1	CBLSUB (L) with attribute VERDAT.					
Location	32°29'25.75"S 60°48'14.88"E	S57 Encoding	CBLSUB (L)	VERDAT=1		
Screen Capture						
Expected Test Results	T1701: An error "VERDAT present on CBLSUB" must be triggered.					
Secondary Errors	T0547: An additional error "Attribute not permitted on object class" must be triggered. T1503: An additional error "Value of VERDAT without corresponding vertical distance value" must be triggered.					
Dataset Name	AA500019	S-58 test No.	T1702	Type	W	
S-58 Description	For each object of type CBLSUB where STATUS equals (4) [not in use] AND CATCBL is not Null.					

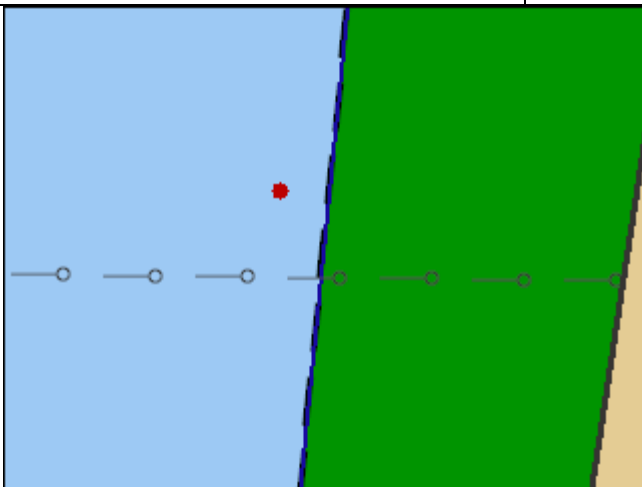
Message	CBLSUB has STATUS (4) [not in use] and a value for CATCBL.				
Solution	Amend CATCBL or STATUS.			Conformity	11.5.1
Test Case No. 1	CBLSUB (L) with attributes CATCBL and STATUS.				
Location	32°29'35.60"S 60°48'12.99"E	S57 Encoding	CBLSUB (L)	CATCBL=1,3,4,5,6 STATUS=4	
Screen Capture					
Expected Test Results	T1702: 5 warnings “CBLSUB has STATUS (4) [not in use] and a value for CATCBL” must be triggered				
Secondary Errors	T1700: 4 additional errors “TESARE object overlaps EXEZNE object” must be triggered. T1703: An additional warning “CBLSUB object where CATCBL = (3)” must be triggered. T2000: An additional error “Attribute value which is not allowed use on an object” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1703	Type	E
S-58 Description	For each object of type CBLSUB where CATCBL = (3) [transmission line].				
Message	CBLSUB object where CATCBL = (3).				
Solution	Remove prohibited value of CATCBL.			Conformity	11.5.1
Test Case No. 1	CBLSUB (L) with attribute CATCBL.				
Location	32°29'43.54"S 60°46'52.21"E	S57 Encoding	CBLSUB (L)	CATCBL=2,3	

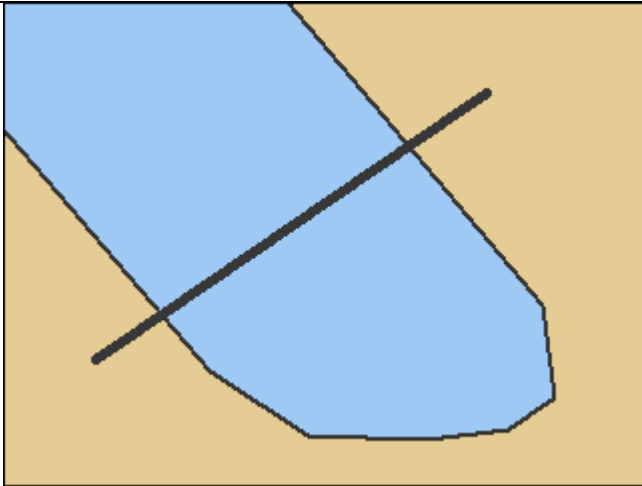
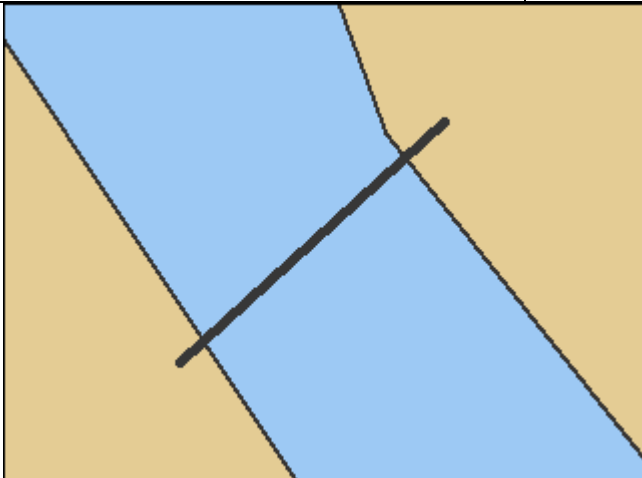
Screen Capture						
Expected Test Results	T1703: 2 errors "CBLSUB object where CATCBL = (3)" must be triggered.					
Secondary Errors	T2000: 2 additional errors "Attribute value which is not allowed use on an object" must be triggered.					
Dataset Name	AA500019	S-58 test No.	T1704	Type	E	
S-58 Description	For each CBLOHD object where VERDAT is present and VERCLR and VERCSA are not present.					
Message	VERDAT populated for CBLOHD object without value of VERCLR or VERCSA.					
Solution	Populate VERCLR or VERCSA otherwise remove VERDAT.		Conformity	11.5.2		
Test Case No. 1	CBLOHD (L) with attribute VERDAT an no attribution for VERCLR and VERCSA.					
Location	32°30'05.51"S 60°48'57.98"E	S57 Encoding	CBLOHD (L)	VERDAT=1		
Screen Capture						
Expected Test Results	T1704: An error "VERDAT populated for CBLOHD object without value of VERCLR or VERCSA" must be triggered.					
Secondary Errors	T0507: 3 additional errors "Mandatory attributes are not populated" must be triggered. T1503: 3 additional errors "Value of VERDAT without corresponding vertical distance value" must be triggered.					
Dataset Name	AA500019	S-58 test No.	T1706	Type	E	

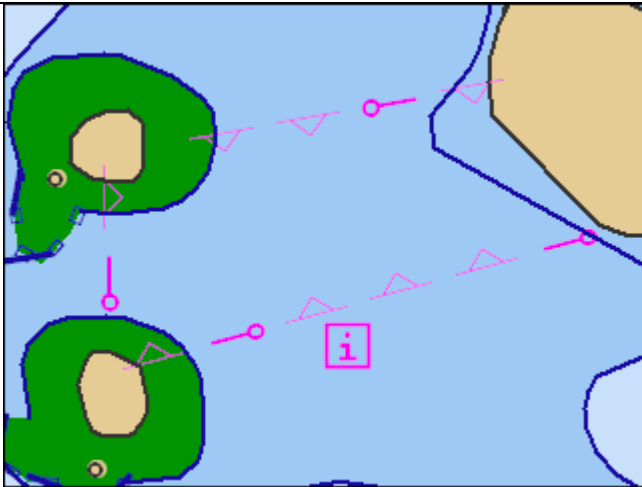
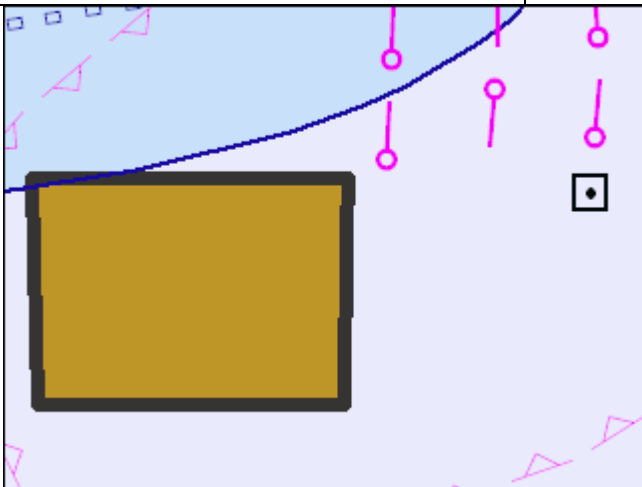
S-58 Description	For each CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not Null AND is not (1) [under construction] or (5) [planned construction].			
Message	CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not (1) or (5).			
Solution	Amend value of CONDTN accordingly.	Conformity	11.5.1, 11.5.2, 11.6.1 and 11.6.3	
Test Case No. 1	CBLOHD (L) with attribute CONDTN.			
Location	32°29'59.32"S 60°46'39.64"E	S57 Encoding	CBLOHD (L)	COND TN=2,3,4
Screen Capture				
Expected Test Results	T1706: 3 errors "CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not (1) or (5)" must be triggered.			
Secondary Errors	T1785: An additional error "Object other than windmill or windmotor with CONDTN = 4 [wingless]" must be triggered. T2000: 3 additional errors "Attribute value which is not allowed use on an object" must be triggered.			
Test Case No. 2	CBLSUB (L) with attribute CONDTN.			
Location	32°29'40.62"S 60°46'30.09"E	S57 Encoding	CBLSUB (L)	COND TN=2,3,4
Screen Capture				
Expected Test Results	T1706: 3 errors "CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not (1) or (5)" must be triggered.			
Secondary Errors	T1785: An additional error "Object other than windmill or windmotor with CONDTN = 4 [wingless]" must be triggered.			


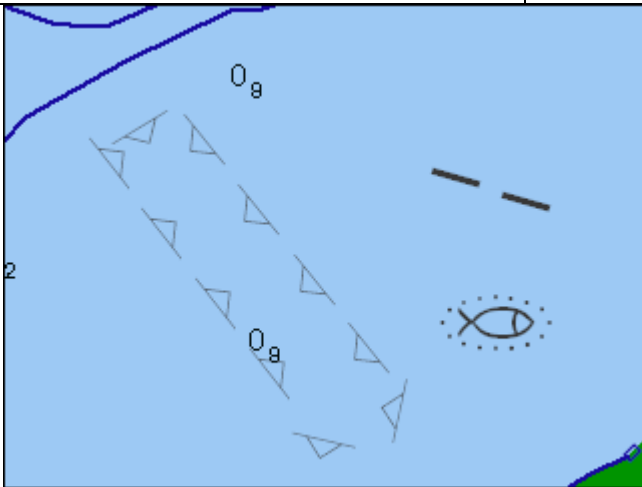
	T2000: 3 errors "Attribute value which is not allowed use on an object" must be triggered.			
Test Case No. 3	PIPSOL (L, P) with attribute CONDTN.			
Location	32°30'06.31"S 60°46'32.58"E	S57 Encoding	PIPSOL (L, P)	CONDTN=2,3,4
Screen Capture				
Expected Test Results	T1706: 6 errors "CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not (1) or (5)" must be triggered.			
Secondary Errors	T1785: 2 additional errors "Object other than windmill or windmotor with CONDTN = 4 [wingless]" must be triggered. T1797: 3 additional errors "Object, geometry and attribute combination which do not display in ECDIS present" must be triggered. T2000: 6 additional errors "Attribute value which is not allowed use on an object" must be triggered.			
Test Case No. 4	PIPOHD (L) with attribute CONDTN.			
Location	32°30'34.04"S 60°48'10.24"E	S57 Encoding	PIPOHD (L)	CONDTN=2,3,4
Screen Capture				
Expected Test Results	T1706: 3 errors "CBLOHD, CBLSUB, PIPSOL or PIPOHD object where CONDTN is not (1) or (5)" must be triggered.			
Secondary Errors	T2000: 3 additional errors "Attribute value which is not allowed use on an object" must be triggered.			
Dataset Name	AA500019	S-58 test No.	T1707	Type E

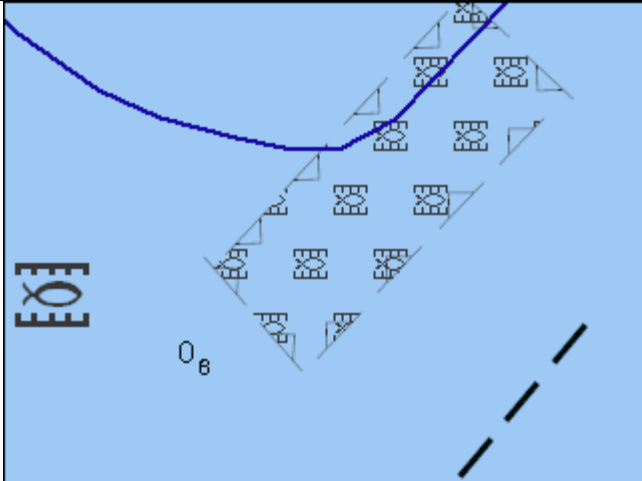
S-58 Description	For each object of type CBLARE where CATCBL = (3) [transmission line] or (6) [mooring cable/chain].				
Message	CBLARE has an inappropriate value of CATCBL.				
Solution	Amend to appropriate value of CATCBL or remove.	Conformity	11.5.3		
Test Case No. 1	CBLARE (A) with attribute CATCBL.				
Location	32°29'33.14"S 60°49'01.88"E	S57 Encoding	CBLARE (A)	CATCBL=2,3,6	
Screen Capture					
Expected Test Results	T1707: 3 errors "CBLARE has an inappropriate value of CATCBL" must be triggered.				
Secondary Errors	T2000: 3 additional errors "Attribute value which is not allowed use on an object" must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1708	Type	E
S-58 Description	For each PIPSOL object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC present on PIPSOL object.				
Solution	Remove VERDAT or VERACC.	Conformity	11.6.1		
Test Case No. 1	PIPSOL (L, P) with attributes VERDAT and VERACC.				
Location	32°29'45.06"S 60°48'21.85"E	S57 Encoding	PIPSOL (L, P)	VERDAT=1 VERACC=1	
Screen Capture					

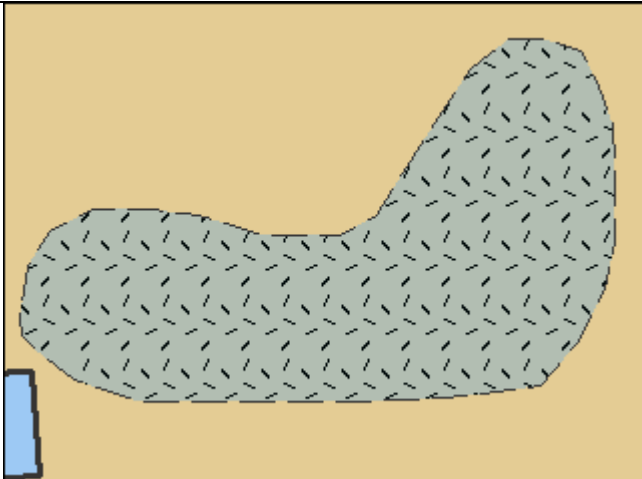
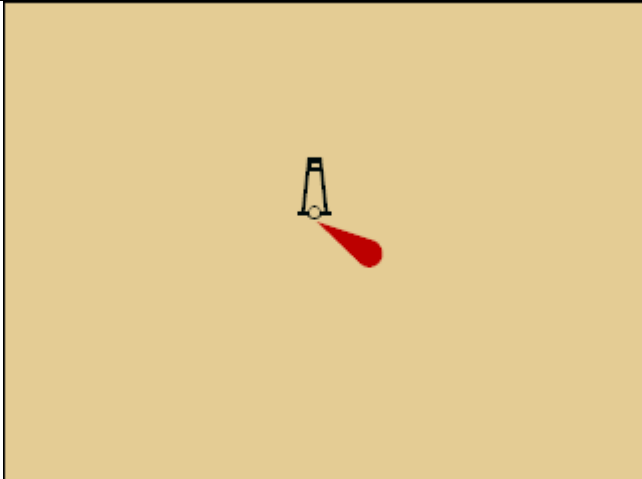
Expected Test Results	T1708: 4 errors “VERDAT or VERACC present on PIPSOL object” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present" must be triggered. T0547: 2 additional errors “Attribute not permitted on object class” must be triggered. T1503: 2 additional warnings “Value of VERDAT without corresponding vertical distance value” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1709	Type	W
S-58 Description	For each PIPSOL object where STATUS equals (4) [not in use] AND CATPIP is present.				
Message	PIPSOL has status (4) not in use and value for CATPIP.				
Solution	Remove value of CATPIP if STATUS equals (4) not in use.	Conformity	11.6.1		
Test Case No. 1	PIPSOL (L, P) with attributes STATUS and CATPIP.				
Location	32°29’30.60”S 60°48’14.84”E	S57 Encoding	PIPSOL (L, P)	CATPIP=4 STATUS=4	
Screen Capture					
Expected Test Results	T1709: 2 warnings “PIPSOL has status (4) not in use and value for CATPIP” must be triggered.				
Secondary Errors	T1797: An additional error “Object, geometry and attribute combination which do not display in ECDIS present” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1712	Type	W
S-58 Description	For each PIPOHD object where STATUS equals (4) [not in use] AND CATPIP or PRODCAT are present.				
Message	PIPOHD has status (4) not in use and values for CATPIP or PRODCAT.				
Solution	Remove values of CATPIP or PRODCAT if STATUS equals (4) not in use.	Conformity	11.6.3		
Test Case No. 1	PIPOHD (L) with attributes CATPIP and STATUS.				
Location	32°30'38.34"S 60°48'14.79"E	S57 Encoding	PIPOHD (L)	CATPIP=4 STATUS=4	

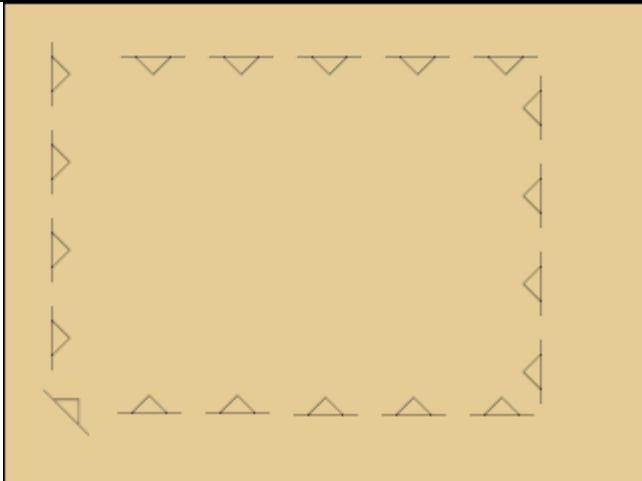
Screen Capture					
Expected Test Results	T1712: A warning “PIPOHD has status (4) not in use and values for CATPIP or PRODC” must be triggered.				
Secondary Errors	None				
Test Case No. 2	PIPOHD (L) with attributes PRODC and STATUS.				
Location	32°30'29.72"S 60°48'06.96"E	S57 Encoding	PIPOHD (L)	PRODC=3 STATUS=4	
Screen Capture					
Expected Test Results	T1712: A warning “PIPOHD has status (4) not in use and values for CATPIP or PRODC” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500019	S-58 test No.	T1713	Type	E
S-58 Description	For each PIPARE object where CONDTN is present.				
Message	CONDTN present on PIPARE object.				
Solution	Remove CONDTN.		Conformity	11.6.4	
Test Case No. 1	PIPARE (A, P) with attribute CONDTN.				
Location	32°29'50.26"S 60°46'44.51"E	S57 Encoding	PIPARE (A, P)	CONDTN=1	


Screen Capture					
Expected Test Results	T1713: 2 errors “CONDTN present on PIPARE object” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1715	Type	E
S-58 Description	For each OFSPLF object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC present on OFSPLF object.				
Solution	Remove VERDAT or VERACC.		Conformity	11.7.2	
Test Case No. 1	OFSPLF (A, P) with attributes VERDAT and VERACC.				
Location	32°30'08.68"S 60°46'32.41"E	S57 Encoding	OFSPLF (A, P)	VERDAT=1 VERACC=1	
Screen Capture					
Expected Test Results	T1715: 4 errors “VERDAT or VERACC present on OFSPLF object” must be triggered.				
Secondary Errors	T0547: 2 additional errors “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1716	Type	E
S-58 Description	For each OSPARE object where VERACC is present.				
Message	OSPARE carries VERACC attribute.				

Solution	Remove VERACC		Conformity	11.7.4	
Test Case No. 1	OSPARE (A) with attribute VERACC.				
Location	32°30'08.63"S 60°46'32.91"E	S57 Encoding	OSPARE (A)	VERACC=1	
Screen Capture					
Expected Test Results	T1716: An error "OSPARE carries VERACC attribute" must be triggered.				
Secondary Errors	T0547: An additional error "Attribute not permitted on object class" must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1717	Type	E
S-58 Description	For each FSHFAC object where VERACC is present.				
Message	MARCUL carries VERACC attribute.				
Solution	Remove VERACC		Conformity	11.9.1	
Test Case No. 1	FSHFAC (A, L, P) with attribute VERACC.				
Location	32°30'03.93"S 60°48'46.21"E	S57 Encoding	FSHFAC (A, L, P)	VERACC=1	
Screen Capture					
Expected Test Results	T1717: 3 errors "MARCUL carries VERACC attribute" must be triggered.				
Secondary Errors	T0547: 3 additional errors "Attribute not permitted on object class" must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1718	Type	E

S-58 Description	For each MARCUL object where VERDAT is present.				
Message	MARCUL carries VERDAT attribute.				
Solution	Remove VERDAT.	Conformity	11.9.2		
Test Case No. 1	MARCUL (A, L, P) with attribute VERDAT.				
Location	32°30'07.78"S 60°48'36.11"E	S57 Encoding	MARCUL (A, L, P)	VERDAT=1	
Screen Capture					
Expected Test Results	T1718: 3 errors “MARCUL carries VERDAT attribute” must be triggered.				
Secondary Errors	T0547: 3 additional errors “Attribute not permitted on object class” must be triggered. T1503: 3 additional warnings “Value of VERDAT without corresponding vertical distance value” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1720	Type	E
S-58 Description	For each ICEARE object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC present on ICEARE object.				
Solution	Remove VERDAT or VERACC.	Conformity	11.13.1		
Test Case No. 1	ICEARE (A) with attributes VERDAT and VERACC.				
Location	32°29'30.41"S 60°49'14.14"E	S57 Encoding	ICEARE (A)	VERDAT=1 VERACC=1	

Screen Capture					
Expected Test Results	T1720: 2 errors “VERDAT or VERACC present on ICEARE object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1723	Type	C
S-58 Description	For each point object forming the same navigational aid which do not point to the same spatial object.				
Message	Object forming a navigational aid does not point to the same spatial object.				
Solution	Ensure all components point to the same spatial object.	Conformity	12.1.2		
Test Case No. 1	LNDMRK (P) & LIGHTS (P) with master/slave relationship but pointing to different spatial objects.				
Location	32°30'48.69"S 60°47'54.53"E	S57 Encoding	LNDMRK (P) LIGHTS (P)		
Screen Capture					
Expected Test Results	T1723: An error “Object forming a navigational aid does not point to the same spatial object” must be triggered.				
Secondary Errors	T0516a: An additional warning “Master and slave point objects do not share the same node” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1727	Type	C

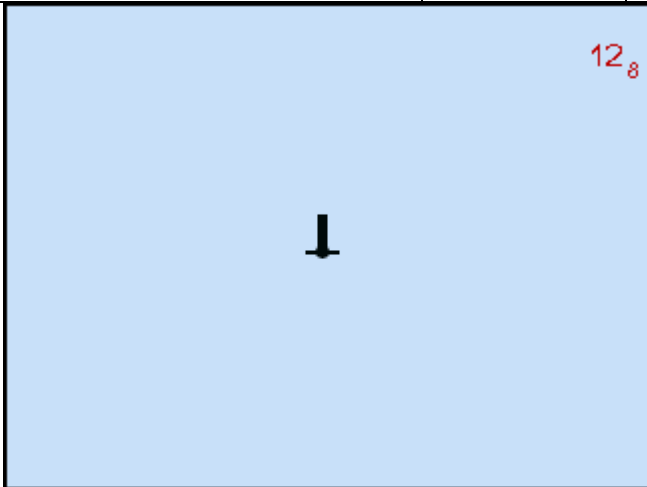
S-58 Description	For each M_NSYS object where MARSYS is not Null which OVERLAPS an M_NSYS object where MARSYS is not Null.				
Message	M_NSYS objects with MARSYS values overlap.				
Solution	Amend limits of M_NSYS objects to remove overlap.		Conformity	12.2	
Test Case No. 1	M_NSYS (A) objects overlapping .				
Location	32°31'05.86"S 60°46'55.12"E	S57 Encoding	M_NSYS (A)	MARSYS=1,2	
Screen Capture					
Expected Test Results	T1727: 2 errors “M_NSYS objects with MARSYS values overlap” must be triggered.				
Secondary Errors	T1726: An additional error “Data coverage not completely covered by M_NSYS objects with a value for MARSYS” must be triggered.				
Dataset Name	AA500019	S-58 test No.	T1728	Type	E
S-58 Description	For each M_NSYS object where ORIENT is not Null which OVERLAPS an M_NSYS object where ORIENT is not Null.				
Message	M_NSYS objects with ORIENT values overlap.				
Solution	Amend limits of M_NSYS objects to remove overlap.		Conformity	12.2	
Test Case No. 1	M_NSYS (A) objects both with ORIENT attribution encoded are overlapping.				
Location	32°31'05.86"S 60°46'55.12"E	S57 Encoding	M_NSYS (A)	MARSYS=1,2 ORIENT=60	

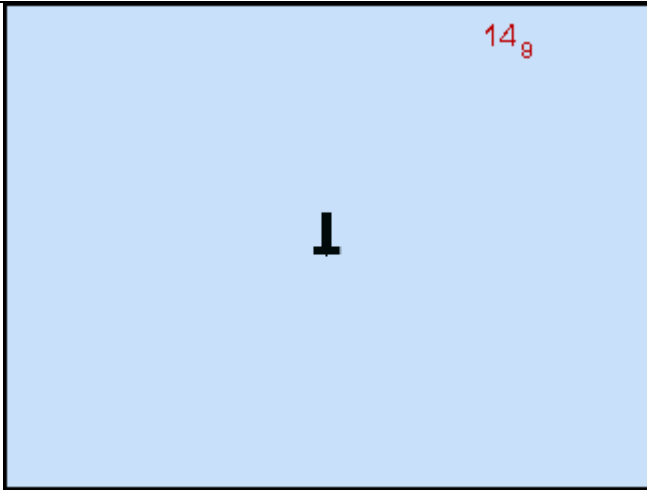
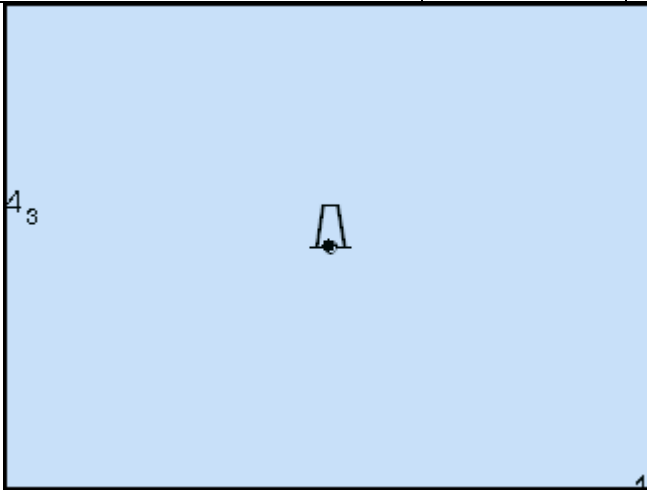
Screen Capture		
Expected Test Results	T1728: 2 errors “M_NSYS objects with ORIENT values overlap” must be triggered.	
Secondary Errors	None	

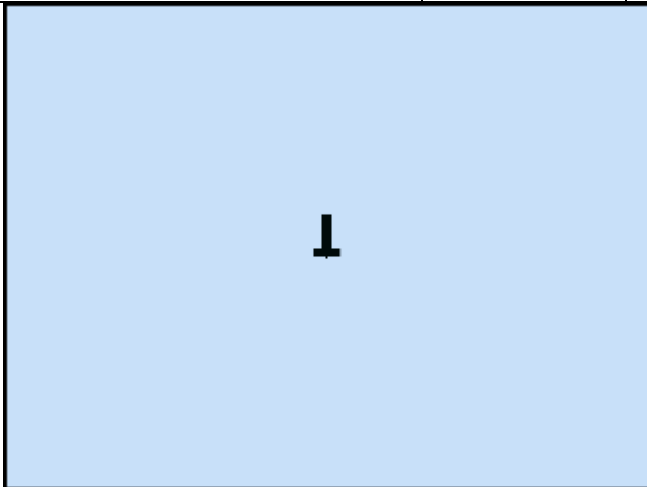
2.20. Test Dataset: AA500020

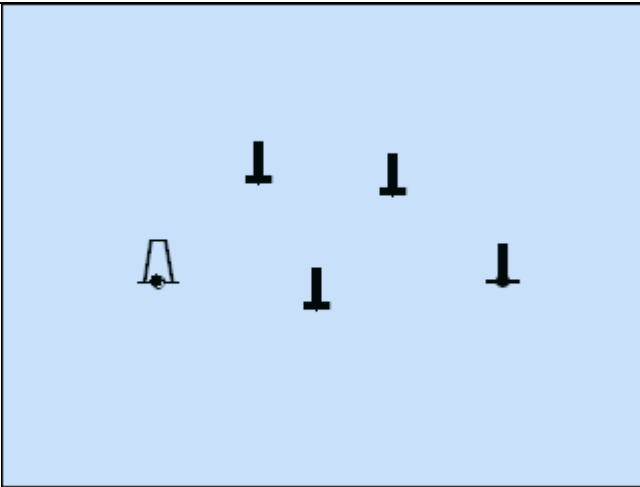
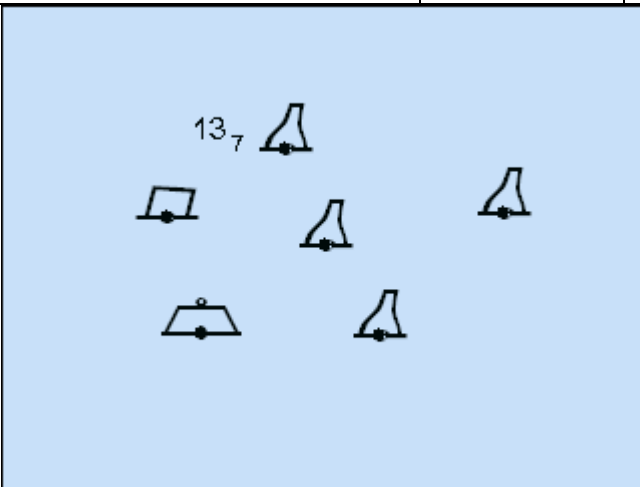
List of S-58 Recommended ENC Validation Checks covered in this section:

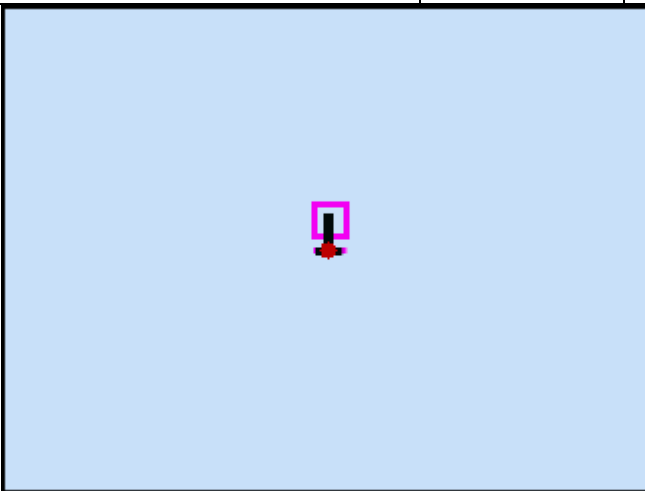
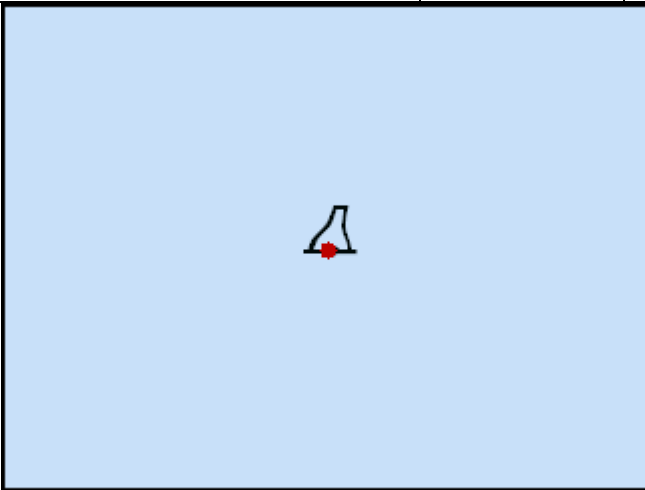
S-58 Test	Description
1730	For each BCNCAR object where VERDAT OR VERACC are present.
1731	For each BCNISD object where VERDAT OR VERACC are present.
1733	For each BCNSAW object where VERDAT OR VERACC are present.
1734	For each BCNSPP object where VERDAT OR VERACC are present.
1735	For each BCNXXX or BOYXXX object where MARSYS is present and equal to the value of MARSYS on the M_NSYS object it is WITHIN.
1736	For each DAYMAR object where VERDAT OR VERACC are present.
1737	For each BOYCAR object where VERACC is present.
1738	For each BOYINB object where VERACC is present.
1739	For each BOYISD object where VERACC is present.
1740	For each BOYLAT object where VERACC is present.
1741	For each BOYSPP object where VERACC is present.
1742	For each BOYSAW object where VERACC is present.
1744	For each LITVES object where HORACC OR VERACC are present.
1745	For each LITFLT object where HORACC OR VERACC are present.
1746	For each TOPMAR object where VERACC, VERDAT, VERLEN, HEIGHT OR MARSYS are present.
1747	For each RETRFL object where MARSYS, VERDAT OR VERACC are present.
1749	For each LIGHTS object where VERACC is present.
1750	For each LIGHTS object which is a slave to a BOYXXX object where HEIGHT is present.

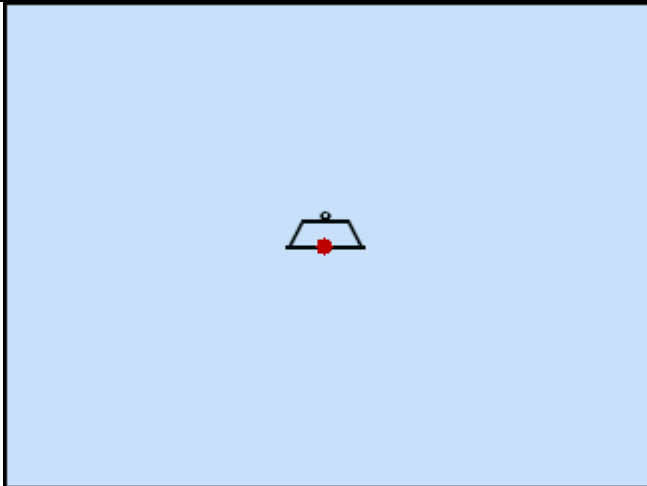
Dataset Name	AA500020	S-58 test No.	T1730	Type	E
S-58 Description	For each BCNCAR object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on BCNCAR object.				
Solution	Remove VERDAT or VERACC.	Conformity	12.3.1		
Test Case No. 1	BCNCAR with attributes VERDAT and VERACC.				
Location	32°30'31.87"S 60°51'11.79"E	S57 Encoding	BCNCAR (P)	VERDAT=3 VERACC=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1730: 2 errors “VERDAT or VERACC are present on BCNCAR object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1731	Type	E
S-58 Description	For each BCNISD object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on BCNISD object.				
Solution	Remove VERDAT or VERACC.	Conformity	12.3.1		
Test Case No. 1	BCNISD with attributes VERDAT and VERACC.				
Location	32°30'33.85"S 60°51'34.53"E	S57 Encoding	BCNISD (P)	VERDAT=3 VERACC=3 HEIGHT=1.0	

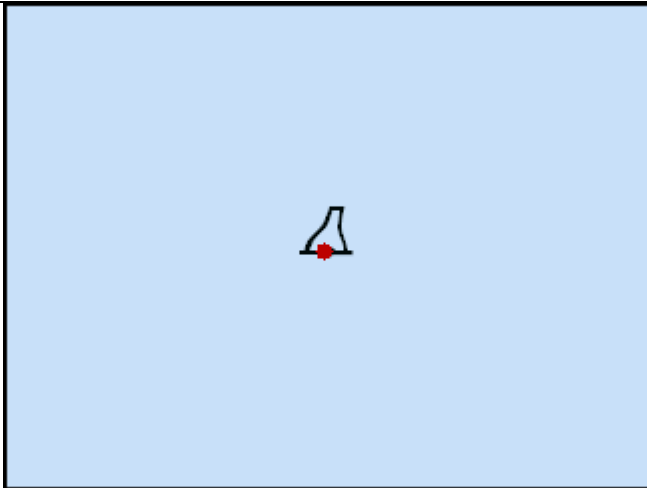
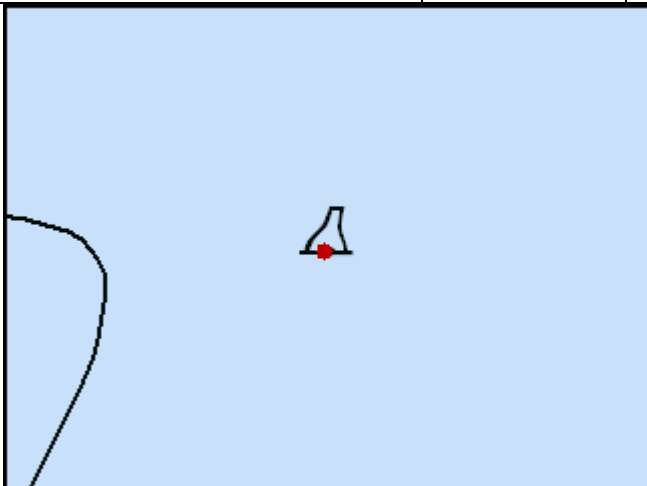
Screen Capture					
Expected Test Results	T1731: 2 errors “VERDAT or VERACC are present on BCNISR object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1733	Type	E
S-58 Description	For each BCNSAW object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on BCNSAW object.				
Solution	Remove VERDAT or VERACC.		Conformity	12.3.1	
Test Case No. 1	BCNSAW with attributes VERDAT and VERACC.				
Location	32°30'38.89"S 60°51'21.50"E	S57 Encoding	BCNSAW (P)	VERDAT=3 VERACC=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1733: 2 errors “VERDAT or VERACC are present on BCNSAW object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				

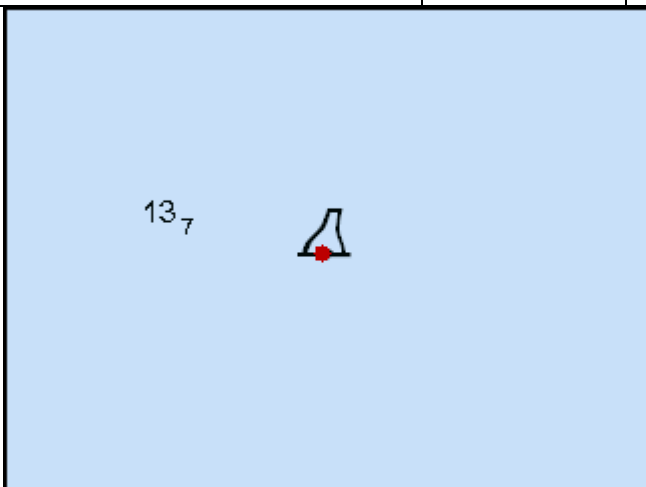
Dataset Name	AA500020	S-58 test No.	T1734	Type	E
S-58 Description	For each BCNSPP object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on BCNSPP object.				
Solution	Remove VERDAT or VERACC.	Conformity	12.3.1		
Test Case No. 1	BCNSPP with attributes VERDAT and VERACC.				
Location	32°30'46.65"S 60°50'57.37"E	S57 Encoding	BCNSPP (P)	VERDAT=3 VERACC=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1734: 2 errors “VERDAT or VERACC are present on BCNSPP object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1735	Type	E
S-58 Description	For each BCNXXX or BOYXXX object where MARSYS is present and equal to the value of MARSYS on the M_NSYS object it is WITHIN.				
Message	Value of MARSYS on Beacon object is the same as the value on M_NSYS object.				
Solution	Remove duplicate value.	Conformity	12.3.1		
Test Case No. 1	BCNXXX with attribute MARSYS.				
Location	32°30'54.77"S 60°51'15.06"E	S57 Encoding	BCNCAR (P) BCNISD (P) BCNLAT (P) BCNSPP (P) BCNSAW (P) M_NSYS (A)	MARSYS=2	



Screen Capture					
Expected Test Results	T1735: 5 errors “Value of MARSYS on Beacon object is the same as the value on M_NSYS object” must be triggered.				
Secondary Errors	T0513: 5 additional errors “An attribute value given on a meta object is duplicated on a geo object” must be triggered.				
Test Case No. 2	BOYXXX with attribute MARSYS.				
Location	32°30'48.95"S 60°50'36.98"E	S57 Encoding	BOYLAT (P) BOYCAR (P) BOYINB (P) BOYISD (P) BOYSAW (P) BOYSPP (P) M_NSYS (A)	MARSYS=2	
Screen Capture					
Expected Test Results	T1735: 6 errors “Value of MARSYS on Beacon object is the same as the value on M_NSYS object” must be triggered.				
Secondary Errors	T0513: 6 additional errors “An attribute value given on a meta object is duplicated on a geo object” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1736	Type	E
S-58 Description	For each DAYMAR object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC are present on DAYMAR object.				

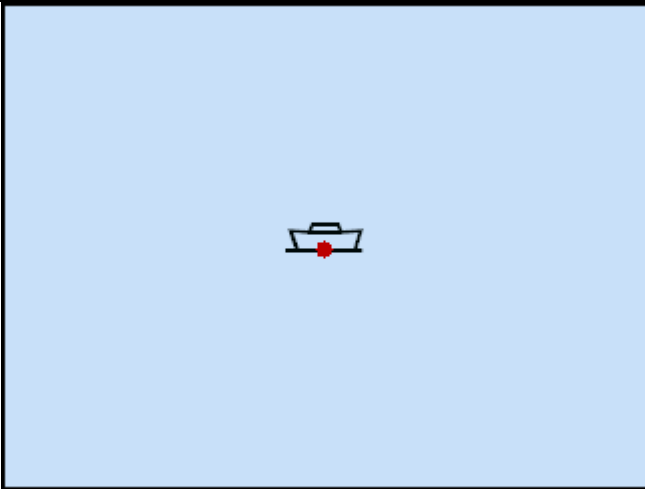
Solution	Remove VERDAT or VERACC.		Conformity	12.3.3	
Test Case No. 1	DAYMAR (P) with attributes VERDAT and VERACC.				
Location	32°30'54.71"S 60°51'42.41"E	S57 Encoding	DAYMAR (P)	VERDAT=3 VERACC=3 HEIGHT=1.0	
Screen Capture					
Expected Test Results	T1736: 2 errors “VERDAT or VERACC are present on DAYMAR object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1737	Type	E
S-58 Description	For each BOYCAR object where VERACC is present.				
Message	VERACC is present on BOYCAR object.				
Solution	Remove VERACC.		Conformity	12.4.1	
Test Case No. 1	BOYCAR with attribute VERACC.				
Location	32°30'32.06"S 60°51'55.42"E	S57 Encoding	BOYCAR (P)	VERACC=1	
Screen Capture					
Expected Test Results	T1737: An error “VERACC is present on BOYCAR object” must be triggered.				

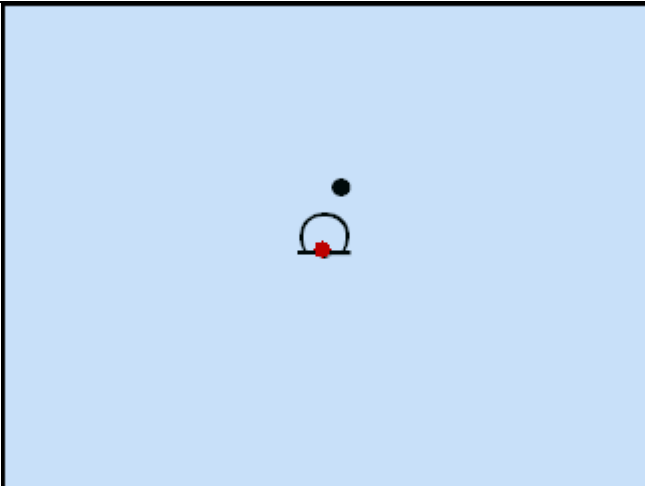
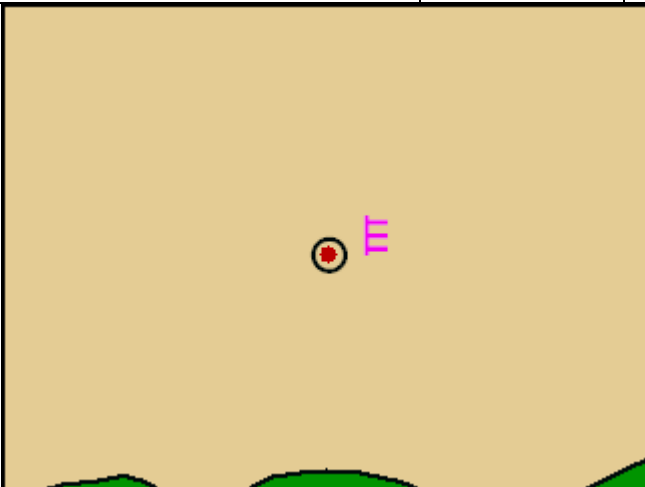
Secondary Errors		T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.			
Dataset Name	AA500020	S-58 test No.	T1738	Type	E
S-58 Description	For each BOYINB object where VERACC is present.				
Message	VERACC is present on BOYINB object.				
Solution	Remove VERACC.	Conformity	12.4.1		
Test Case No. 1	BOYINB with attribute VERACC.				
Location	32°31'01.67"S 60°50'47.93"E	S57 Encoding	BOYINB (P)	VERACC=1	
Screen Capture					
Expected Test Results	T1738: An error “VERACC is present on BOYINB object” must be triggered.				
Secondary Errors	T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1739	Type	E
S-58 Description	For each BOYISD object where VERACC is present.				
Message	VERACC is present on BOYISD object.				
Solution	Remove VERACC.	Conformity	12.4.1		
Test Case No. 1	BOYISD with attribute VERACC.				
Location	32°30'16.86"S 60°51'42.40"E	S57 Encoding	BOYISD (P)	VERACC=1	

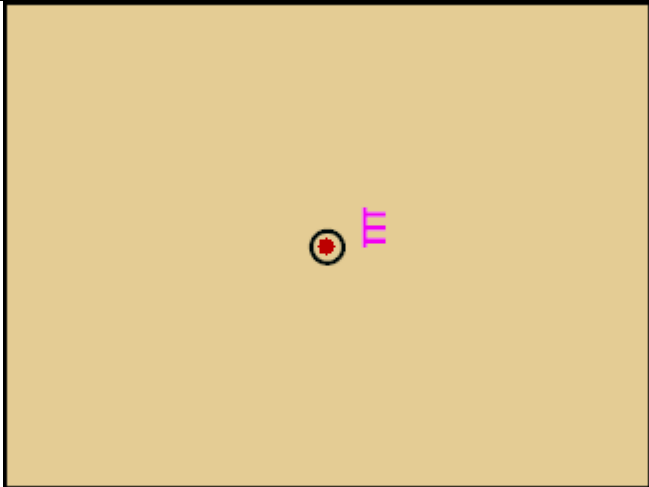
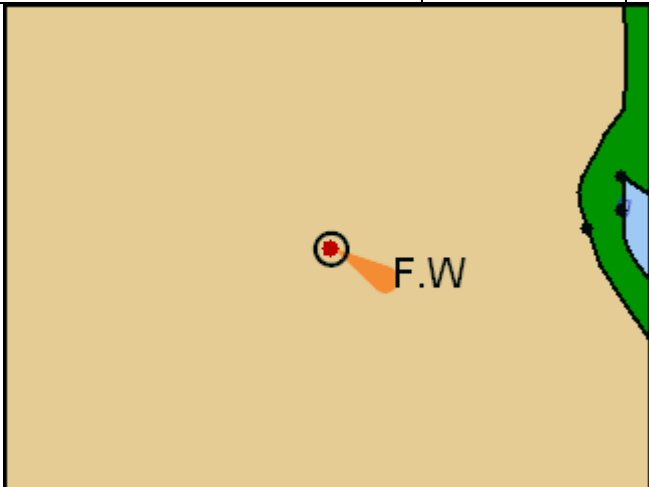
Screen Capture					
Expected Test Results	T1739: An error “VERACC is present on BOYISD object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1740	Type	E
S-58 Description	For each BOYLAT object where VERACC is present.				
Message	VERACC is present on BOYLAT object.				
Solution	Remove VERACC.	Conformity	12.4.1		
Test Case No. 1	BOYLAT with attribute VERACC.				
Location	32°29'58.39"S 60°52'08.03"E	S57 Encoding	BOYLAT (P)	VERACC=1	
Screen Capture					
Expected Test Results	T1740: An error “VERACC is present on BOYLAT object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1741	Type	E

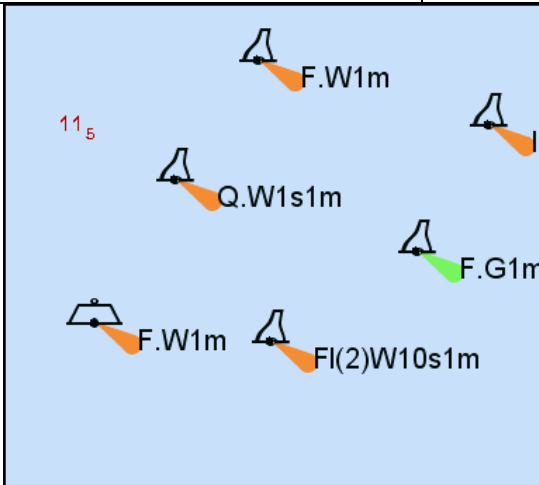
S-58 Description	For each BOYSPP object where VERACC is present.				
Message	VERACC is present on BOYSPP object.				
Solution	Remove VERACC.	Conformity	12.4.1		
Test Case No. 1	BOYSPP with attribute VERACC.				
Location	32°30'41.74"S 60°50'38.45"E	S57 Encoding	BOYSPP (P)	VERACC=1	
Screen Capture					
Expected Test Results	T1741: An error “VERACC is present on BOYSPP object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1742	Type	E
S-58 Description	For each BOYSAW object where VERACC is present.				
Message	VERACC is present on BOYSAW object.				
Solution	Remove VERACC.	Conformity	12.4.1		
Test Case No. 1	BOYSAW with attribute VERACC.				
Location	32°30'03.46"S 60°50'40.99"E	S57 Encoding	BOYSAW (P)	VERACC=1	

Screen Capture					
Expected Test Results	T1742: An error “VERACC is present on BOYSAW object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1744	Type	E
S-58 Description	For each LITVES object where HORACC OR VERACC are present.				
Message	HORACC or VERACC are present on LITVES object.				
Solution	Remove HORACC or VERACC.	Conformity	12.4.2		
Test Case No. 1	LITVES (P) with attributes HORACC and VERACC.				
Location	32°31'05.30"S 60°52'01.14"E	S57 Encoding	LITVES (P)	VERACC=1 HORACC=1	
Screen Capture					
Expected Test Results	T1744: 2 errors “HORACC or VERACC are present on LITVES object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1545: An additional error “Value for HORACC without a value of HORCLR” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				

Dataset Name	AA500020	S-58 test No.	T1745	Type	E
S-58 Description	For each LITFLT object where HORACC OR VERACC are present.				
Message	HORACC or VERACC are present on LITFLT object.				
Solution	Remove HORACC or VERACC.	Conformity	12.4.2		
Test Case No. 1	LITFLT (P) with attributes HORACC and VERACC.				
Location	32°30'53.67"S 60°51'57.88"E	S57 Encoding	LITFLT (P)	VERACC=1 HORACC=1	
Screen Capture					
Expected Test Results	T1745: 2 errors “HORACC or VERACC are present on LITFLT object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1545: An additional error “Value for HORACC without a value of HORCLR” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSPA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1746	Type	E
S-58 Description	For each TOPMAR object where VERACC, VERDAT, VERLEN, HEIGHT OR MARSYS are present.				
Message	VERACC, VERDAT, VERLEN, HEIGHT or MARSYS are present on TOPMAR object.				
Solution	Remove VERACC, VERDAT, VERLEN, HEIGHT or MARSYS.	Conformity	12.6		
Test Case No. 1	BOYSAW, TOPMAR with attributes VERACC, VERDAT, VERLEN, HEIGHT and MARSYS.				
Location	32°30'01.66"S 60°50'53.07"E	S57 Encoding	BOYSAW (P) TOPMAR (P)	VERACC=1 VERLEN=2 VERDAT=3 HEIGHT=1 MARSYS=1	

Screen Capture					
Expected Test Results	T1746: 5 errors “VERACC, VERDAT, VERLEN, HEIGHT or MARSYS are present on TOPMAR object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500020	S-58 test No.	T1747	Type	E
S-58 Description	For each RETRFL object where MARSYS, VERDAT OR VERACC are present.				
Message	MARSYS, VERDAT or VERACC are present on RETRFL object.				
Solution	Remove MARSYS, VERDAT or VERACC.		Conformity	12.7	
Test Case No. 1	LNDMRK (P), RETRFL (P) with attributes VERACC and MARSYS.				
Location	32°30'40.20"S 60°49'59.13"E	S57 Encoding	LNDMRK (P) RETRFLT (P)	VERACC=1 MARSYS=2	
Screen Capture					
Expected Test Results	T1747: 2 errors “MARSYS, VERDAT or VERACC are present on RETRFL object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				

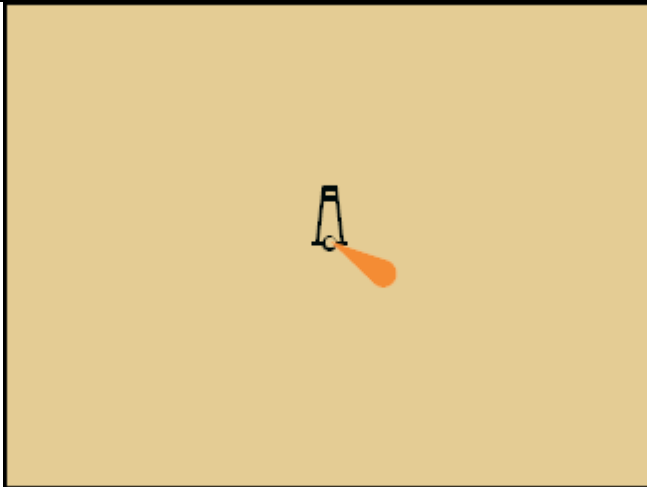
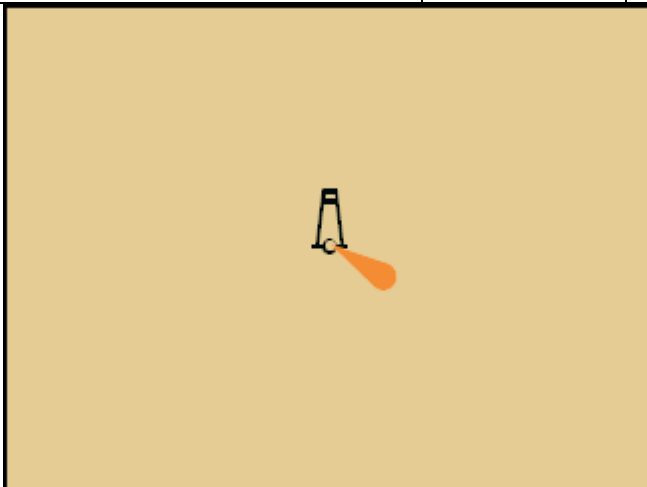
Test Case No. 2	LNDMRK (P), RETRFL (P) with attribute VERDAT.					
Location	32°30'35.97"S 60°50'02.88"E		S57 Encoding	LNDMRK (P) RETRFL (P)	VERDAT=3	
Screen Capture						
Expected Test Results	T1747: An error “MARSYS, VERDAT or VERACC are present on RETRFL object” must be triggered.					
Secondary Errors	T0547: An additional error “Object contains attributes outside of the list of permissible attributes for the object class” must be triggered.					
Dataset Name	AA500020		S-58 test No.	T1749		Type E
S-58 Description	For each LIGHTS object where VERACC is present.					
Message	VERACC present on LIGHTS object.					
Solution	Remove VERACC.			Conformity	12.8.1	
Test Case No. 1	LNDMRK (P), LIGHTS with attribute VERACC.					
Location	32°30'30.77"S 60°50'04.41"E		S57 Encoding	LNDMRK (P) LIGHTS (P)	VERACC=1	
Screen Capture						
Expected Test Results	T1749: An error “VERACC present on LIGHTS object” must be triggered.					
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSPA or VERCCL” must be triggered.					

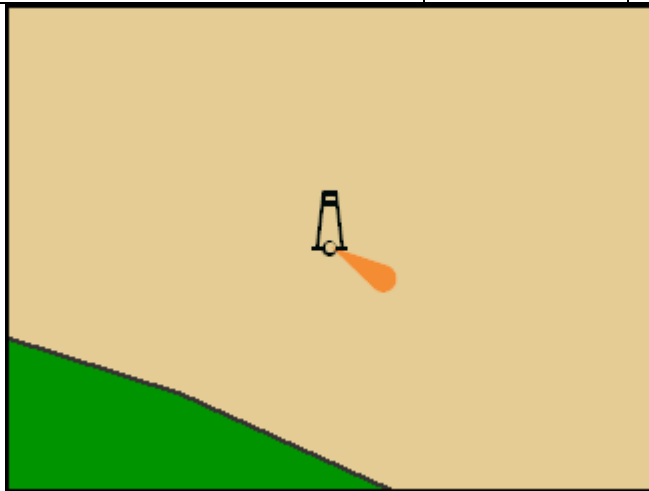
Dataset Name	AA500020	S-58 test No.	T1750	Type	E
S-58 Description	For each LIGHTS object which is a slave to a BOYXXX object where HEIGHT is present.				
Message	HEIGHT present on LIGHTS object which is slave to a BOYXXX object.				
Solution	Remove HEIGHT.		Conformity	12.8.1	
Test Case No. 1	BOYLAT, LIGHTS with HEIGHT attributed.				
Location	32°30'04.91"S 60°52'14.14"E	S57 Encoding	BOYLAT (P) BOYCAR (P) BOYINB (P) BOYISD (P) BOYSAW (P) BOYSPP (P) LIGHTS (P)	HEIGHT=1	
Screen Capture					
Expected Test Results	T1750: 6 errors “HEIGHT present on LIGHTS object which is slave to a BOYXXX object” must be triggered.				
Secondary Errors	None				

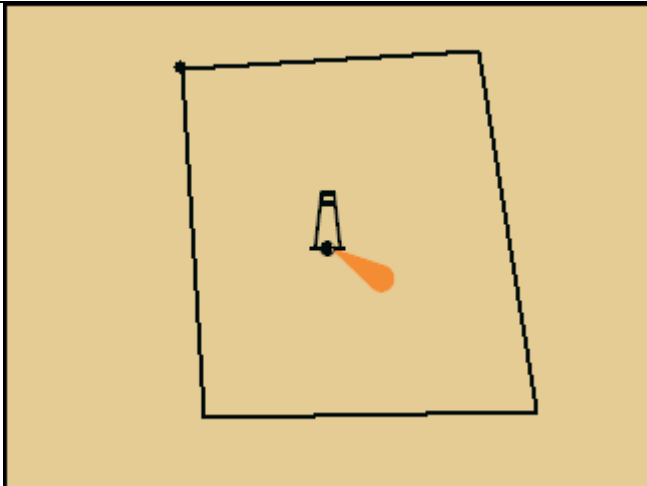
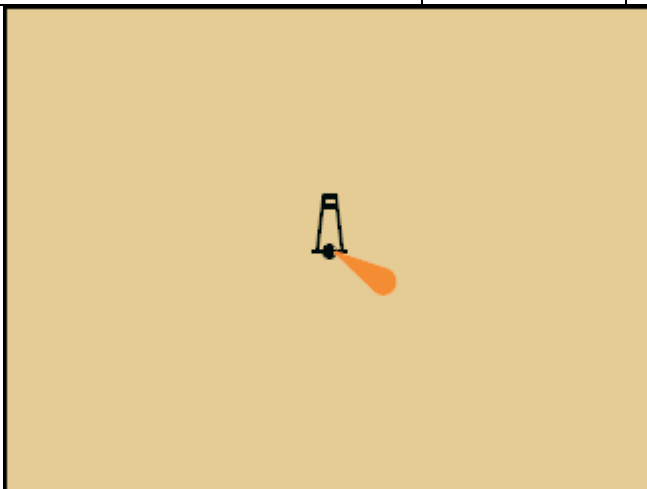
2.21. Test Dataset: AA500021

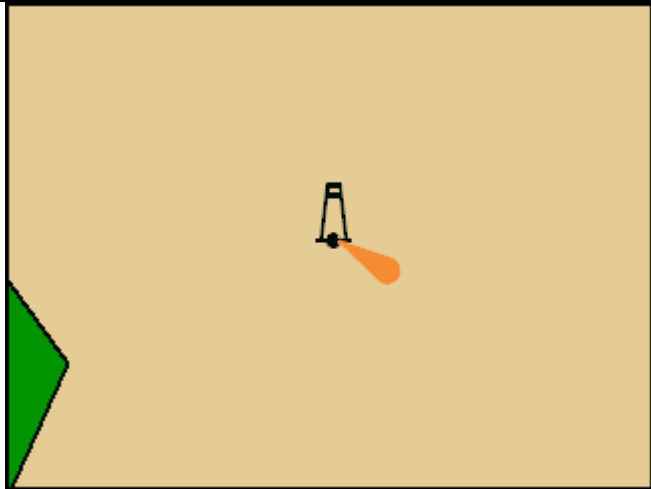
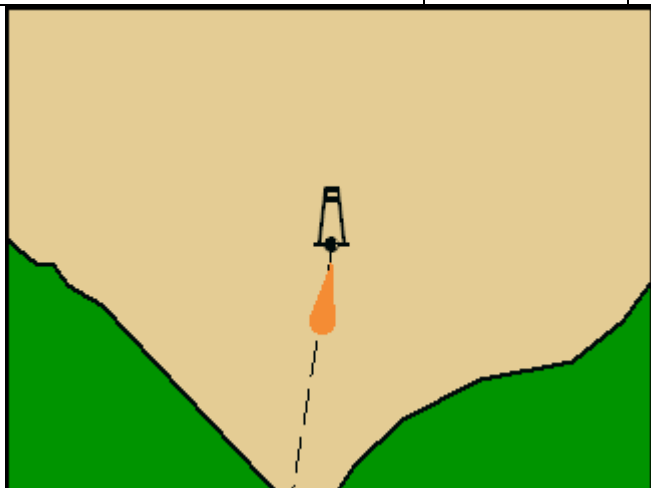
List of S-58 Recommended ENC Validation Checks covered in this section:

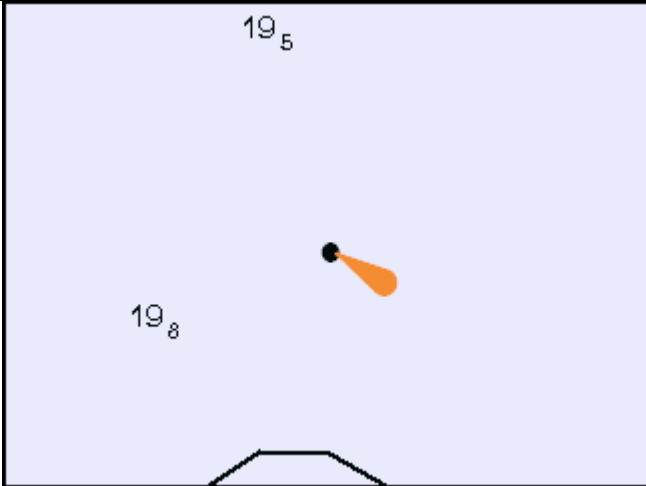
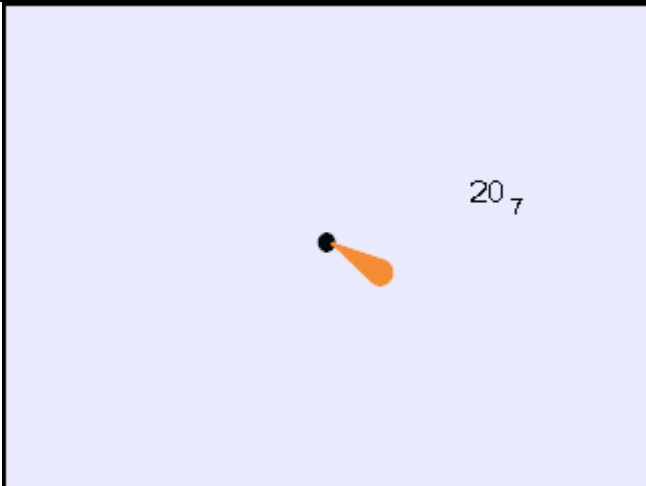
S-58 Test	Description														
1751	For each LIGHTS object where ORIENT is present AND CATLIT is not (1) [directional function] OR (16) [moiré effect].														
1752	For each LIGHTS object where LITCHR is equal to (1) [fixed] AND SIGGRP, SIGPER or SIGSEQ are present.														
1754	For each LIGHTS object where VERDAT is not Null AND equal to the value of VERDAT on the M_VDAT object it is WITHIN.														
1755	For each LIGHTS object where VERDAT is not Null AND equal to the value of VERDAT in the Vertical Datum subfield (VDAT) of the Data Set Parameter field (DSPM).														
1756	For each LIGHTS object where CATLIT equals (4) [leading light] AND without CATLIT equals (1) [directional function] AND ORIENT is present.														
1757	For each LIGHTS object where CATLIT equals (19) [horizontally disposed] or (20) [vertically disposed] AND MLTYLT does not contain a value greater than 1.														
1758	For each LIGHTS object where CATLIT equals (17) [emergency] AND it is not COINCIDENT with another LIGHTS object.														
1759	For each RDOSTA object where ORIENT is not Null AND CATROS is not (2) [directional radiobeacon].														
1760	For each RADSTA object where VERDAT OR VERACC are present.														
1761	For each RADRFL object where VERDAT OR VERACC are present.														
1762	For each RADRFL object which TOUCHES an object of type area or point having CONRAD as an allowable attribute.														
1764	For each object where STATUS is equal to (1) [permanent] and PERSTA and/or PEREND are present.														
1768	For each SOUNDG object where the depth value is less than or equal to the DRVAL1 of the DEPAE or DRGARE it lies WITHIN AND DRVAL1 of that object is not Null.														
1769	For each SOUNDG object where EXPSON is not (3) [deeper than the range of the depth of the surrounding depth area] AND the depth value is greater than the DRVAL2 of the overlapping DEPAE object AND DRVAL2 of this object is not Null.														
1770a	For each SOUNDG object where EXPSON = (3) AND the depth value is less than or equal to DRVAL2 of the DEPAE it is WITHIN where DRVAL2 is not unknown.														
1770b	For each SOUNDG object where EXPSON = (3) that the depth value is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.														
1770c	For each SOUNDG object where EXPSON = (3) where the depth value is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.														
1772	For each UWTRC object where VALSON is not Null AND EXPSON is not present OR (1) [within the range of depth of the surrounding depth area] AND VALSON is greater than the DRVAL2 OR less than or equal to DRVAL1 of the overlapping DEPAE OR DRGARE object AND DRVAL1 AND DRVAL2 of this object are not Null.														
1773	For each UWTRC object where VALSON is not Null AND EXPSON = (2) AND VALSON is greater than the value of DRVAL1 of the DEPAE or DRGARE object it is WITHIN AND DRVAL1 is not unknown.														
1774a	For each UWTRC object where VALSON is not Null AND EXPSON = (3) AND the VALSON is less than or equal to DRVAL2 of the DEPAE it is WITHIN where DRVAL2 is not unknown.														
1774b	For each UWTRC object where EXPSON = (3) that the depth value is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.														
1774c	For each UWTRC object where EXPSON = (3) where VALSON is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.														
1776	For each LIGHTS object where the value of LITCHR is as listed in the table below AND SIGGRP is not as listed in the table below. <table border="1"> <thead> <tr> <th>LITCHR</th><th>SIGGRP</th></tr> </thead> <tbody> <tr> <td>6</td><td>(1)</td></tr> <tr> <td>7</td><td>(1)</td></tr> <tr> <td>9</td><td>()</td></tr> <tr> <td>10</td><td>()</td></tr> <tr> <td>11</td><td>()</td></tr> <tr> <td>28</td><td>()</td></tr> </tbody> </table>	LITCHR	SIGGRP	6	(1)	7	(1)	9	()	10	()	11	()	28	()
LITCHR	SIGGRP														
6	(1)														
7	(1)														
9	()														
10	()														
11	()														
28	()														
1779	For each DEPAE object where DRVAL1 is equal to DRVAL2.														
507	If any mandatory attributes are not populated.														

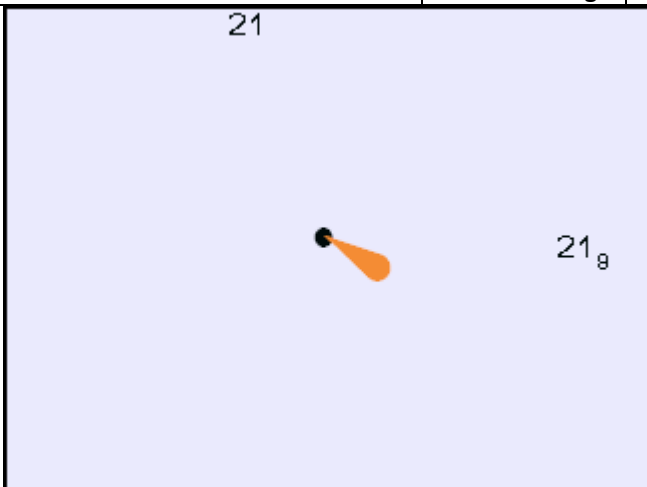
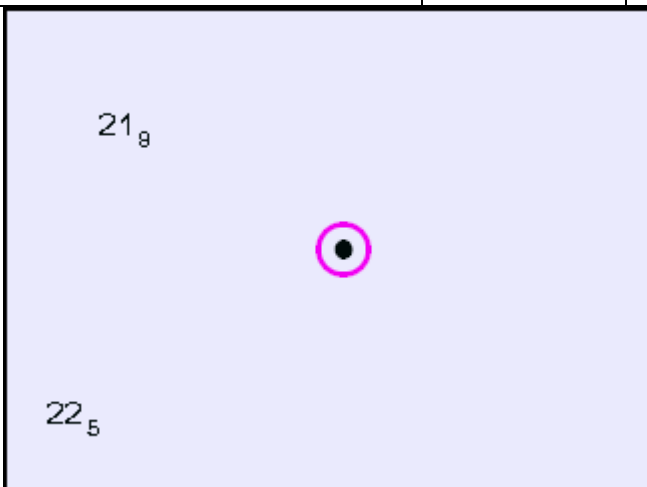
Dataset Name	AA500021	S-58 test No.	T1751	Type	E
S-58 Description	For each LIGHTS object where ORIENT is present AND CATLIT is not (1) [directional function] OR (16) [moiré effect].				
Message	ORIENT populated without CATLIT (1) or (16).				
Solution	Populate appropriate value of CATLIT or remove ORIENT.		Conformity	12.8.1 and Appendix B.1 (3.5.2)	
Test Case No. 1	LIGHTS with attribute CATLIT and ORIENT.				
Location	32°31'36.91"S 60°49'26.58"E	S57 Encoding	LIGHTS (P)	CATLIT=6 ORIENT=25	
Screen Capture					
Expected Test Results	T1751: An error “ORIENT populated without CATLIT (1) or (16)” must be triggered.				
Secondary Errors	None				
Test Case No. 2	LIGHTS with attribute ORIENT and undefined CATLIT.				
Location	32°31'36.91"S 60°49'26.85"E	S57 Encoding	LIGHTS (P)	ORIENT=25	
Screen Capture					
Expected Test Results	T1751: An error “ORIENT populated without CATLIT (1) or (16)” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1752	Type	E

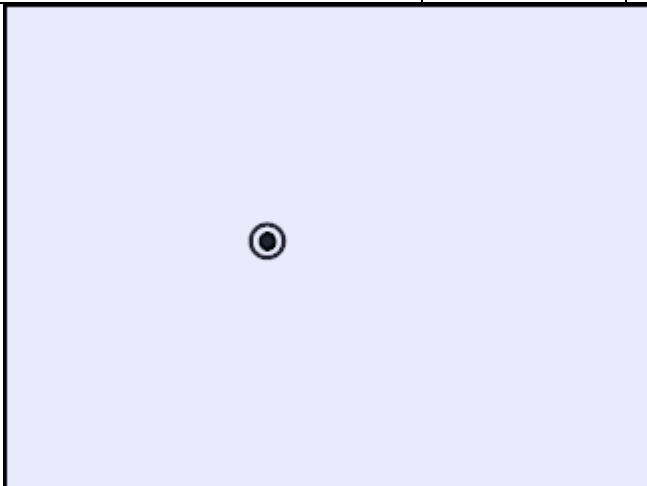
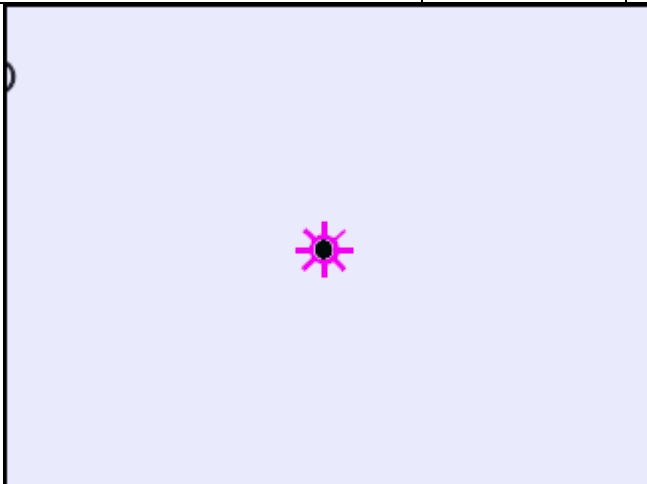
S-58 Description	For each LIGHTS where LITCHR is equal to (1) [fixed] AND SIGGRP, SIGPER or SIGSEQ are present.				
Message	SIGGRP, SIGPER or SIGSEQ present for LIGHTS object where LITCHR = (1) [fixed].				
Solution	Remove SIGGRP, SIGPER or SEGSEQ, not applicable to fixed lights.	Conformity	12.8.1		
Test Case No. 1	LIGHTS with attributes LITCHR, SIGGRP, SIGPER and SIGSEQ.				
Location	32°31'37.19"S 60°49'27.75"E	S57 Encoding	LIGHTS (P)	LITCHR=1 SIGGRP=(1) SIGPER=4 SIGSEQ=00.4+(03.6)	
Screen Capture					
Expected Test Results	T1752: An error “SIGGRP, SIGPER or SIGSEQ present for LIGHTS object where LITCHR = (1) [fixed]” must be triggered.				
Secondary Errors	T0541a: An additional error “SIGGRP is encoded for a fixed light” must be triggered.				
Dataset Name	AA500021	S-58 test No.	T1754	Type	E
S-58 Description	For each LIGHTS object where VERDAT is not Null AND equal to the value of VERDAT on the M_VDAT object it is WITHIN.				
Message	LIGHTS object with VERDAT which is identical to that on the underlying M_VDAT object.				
Solution	Remove unnecessary value of VERDAT from the LIGHTS object.	Conformity	12.8.1		
Test Case No. 1	LIGHTS with VERDAT equal to the overlapping M_VDAT VERDAT.				
Location	32°31'37.16"S 60°49'28.28"E	S57 Encoding	M_VDAT (A) LIGHTS (P)	VERDAT=28	

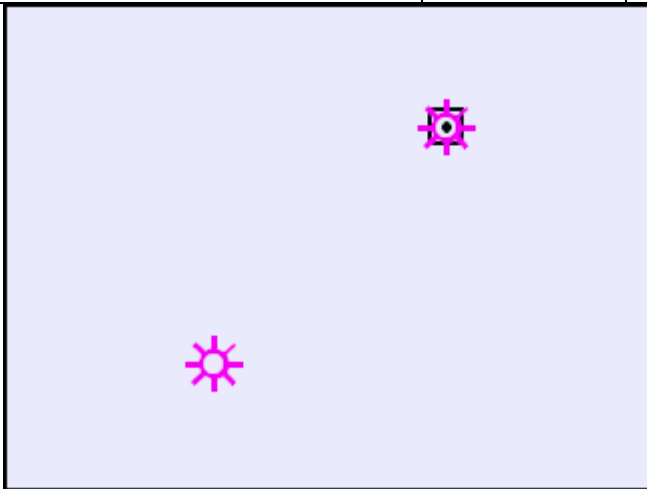
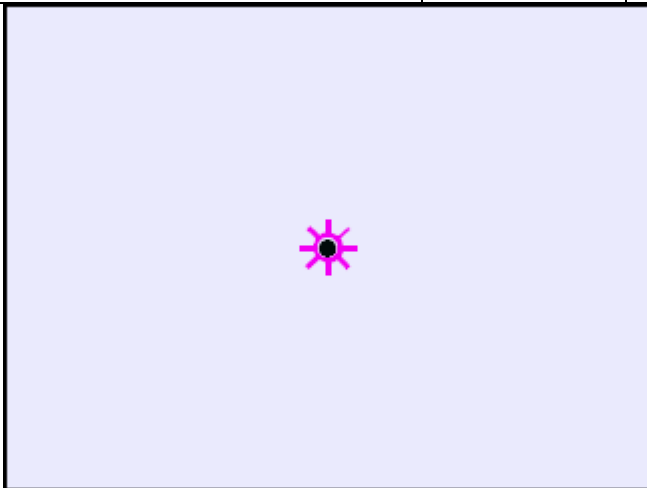
Screen Capture					
Expected Test Results	T1754: An error “LIGHTS with VERDAT which is identical to that on the underlying M_VDAT object” must be triggered.				
Secondary Errors	T0513: An additional error “An attribute value given on a meta object is duplicated on a geo object” must be triggered.				
Dataset Name	AA500021	S-58 test No.	T1755	Type	E
S-58 Description	For each LIGHTS object where VERDAT is not Null AND equal to the value of VERDAT in the Vertical Datum subfield (VDAT) of the Data Set Parameter field (DPSM).				
Message	LIGHTS object with VERDAT which is identical to that in the VDAT subfield of the DPSM field.				
Solution	Remove unnecessary value of VERDAT.		Conformity	12.8.1	
Test Case No. 1	LIGHTS with VERDAT equal to the Vertical Datum subfield of the Data Set Parameter field.				
Location	32°31'37.23"S 60°49'28.91"E	S57 Encoding	LIGHTS (P)	VERDAT=16	
Screen Capture					
Expected Test Results	T1755: An error “LIGHTS object with VERDAT which is identical to that in the VDAT subfield of the DPSM field” must be triggered.				
Secondary Errors	T0513: An additional error “An attribute value given on a meta object is duplicated on a geo object” must be triggered.				

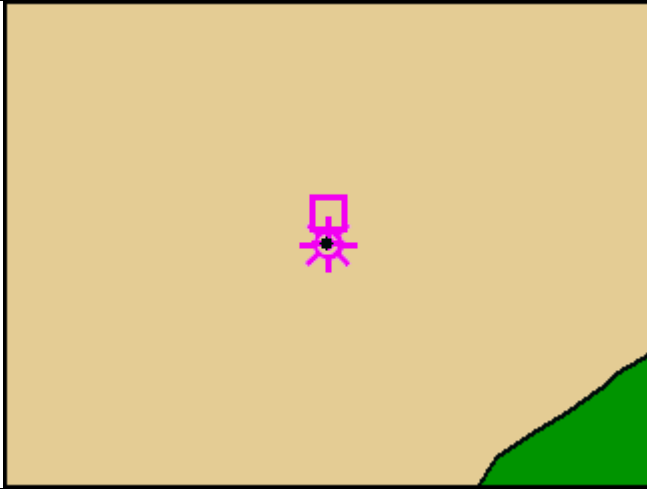
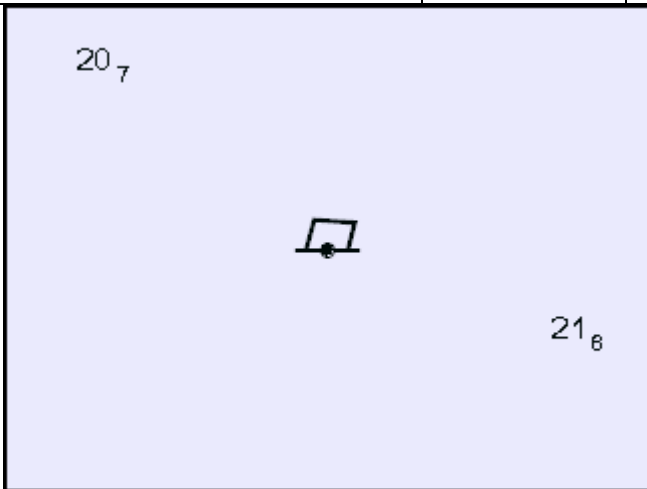
Dataset Name	AA500021	S-58 test No.	T1756	Type	E
S-58 Description	For each LIGHTS object where CATLIT equals (4) [leading light] AND without CATLIT equals (1) [directional function] AND ORIENT is present.				
Message	ORIENT present for non-directional leading light LIGHTS object.				
Solution	Remove value of ORIENT.	Conformity	12.8.6.4 and 12.8.6.5		
Test Case No. 1	LIGHTS with attribute CATLIT and ORIENT.				
Location	32°31'37.70"S 60°49'28.67"E	S57 Encoding	LIGHTS (P)	CATLIT=4 ORIENT=10	
Screen Capture					
Expected Test Results	T1756: An error "ORIENT present for non-directional leading light LIGHTS object" must be triggered.				
Secondary Errors	T1751: An additional error "ORIENT populated without CATLIT (1) or (16)" must be triggered.				
Test Case No. 2	LIGHTS with attribute CATLIT and ORIENT.				
Location	32°31'38.46"S 60°49'29.18"E	S57 Encoding	LIGHTS (P)	CATLIT=1,4 ORIENT=10	
Screen Capture					
Expected Test Results	T1756: An error "ORIENT present for non-directional leading light LIGHTS object" must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1757	Type	E

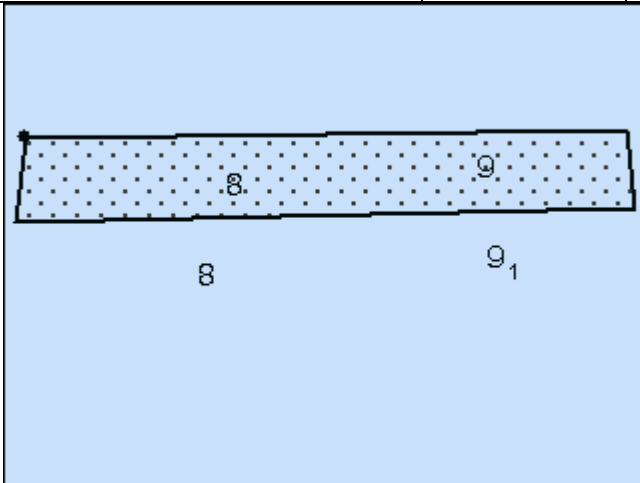
S-58 Description	For each LIGHTS object where CATLIT equals (19) [horizontally disposed] or (20) [vertically disposed] AND MLTYLT does not contain a value greater than 1.				
Message	LIGHTS object where CATLIT = (19) or (20) without a value of MLTYLT.				
Solution	Populate the value of MLTYLT.		Conformity	12.8.7	
Test Case No. 1	LIGHTS with attribute CATLIT.				
Location	32°31'53.15"S 60°49'57.80"E	S57 Encoding	LIGHTS (P)	CATLIT=19 MLTYLT=UNDEFINED	
Screen Capture					
Expected Test Results	T1757: An error “LIGHTS object where CATLIT = (19) or (20) without a value of MLTYLT” must be triggered.				
Secondary Errors	None				
Test Case No. 2	LIGHTS with attribute CATLIT.				
Location	32°31'52.88"S 60°50'06.07"E	S57 Encoding	LIGHTS (P)	CATLIT=20 MLTYLT=UNDEFINED	
Screen Capture					
Expected Test Results	T1757: An error “LIGHTS object where CATLIT = (19) or (20) without a value of MLTYLT” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1758	Type	E
S-58 Description	For each LIGHTS object where CATLIT equals (17) [emergency] AND it is not COINCIDENT with another LIGHTS object.				

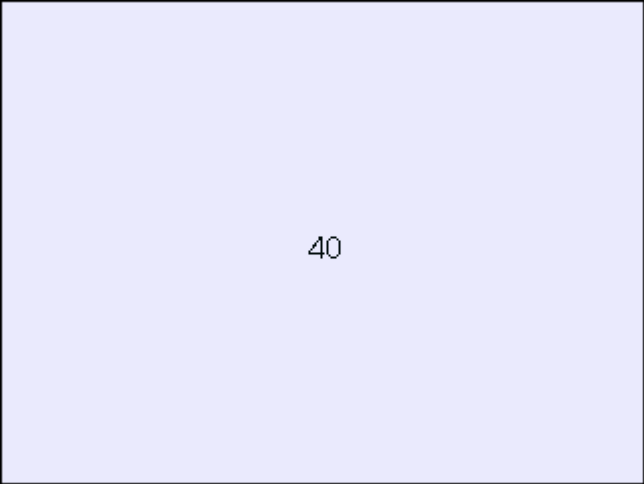
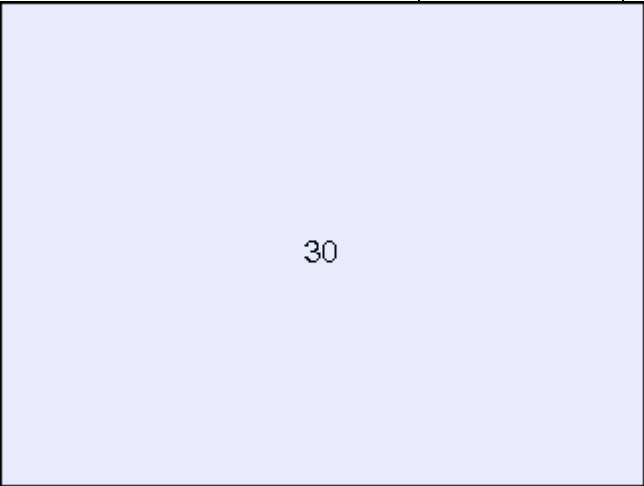
Message	LIGHTS object isolated and with CATLIT (17) [emergency].				
Solution	Encode primary LIGHTS object.	Conformity	12.8.7		
Test Case No. 1	LIGHTS with attribute CATLIT.				
Location	32°32'01.85"S 60°50'05.28"E	S57 Encoding	LIGHTS (P)	CATLIT=17	
Screen Capture					
Expected Test Results	T1758: An error “LIGHTS object isolated and with CATLIT (17) [emergency]” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1759	Type	E
S-58 Description	For each RDOSTA object where ORIENT is not Null AND CATROS is not (2) [directional radiobeacon].				
Message	RDOSTA with ORIENT but without CATROS = (2).				
Solution	Populate CATROS = (2).	Conformity	12.9.1		
Test Case No. 1	RDOSTA (P) with attribute ORIENT encoded where CATROS does not =2[directional radiobeacon].				
Location	32°32'05.01"S 60°50'17.52"E	S57 Encoding	RDOSTA (P)	ORIENT=50 CATROS=7	
Screen Capture					
Expected Test Results	T1759: An error “RDOSTA with ORIENT but without CATROS = (2)” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1760	Type	E

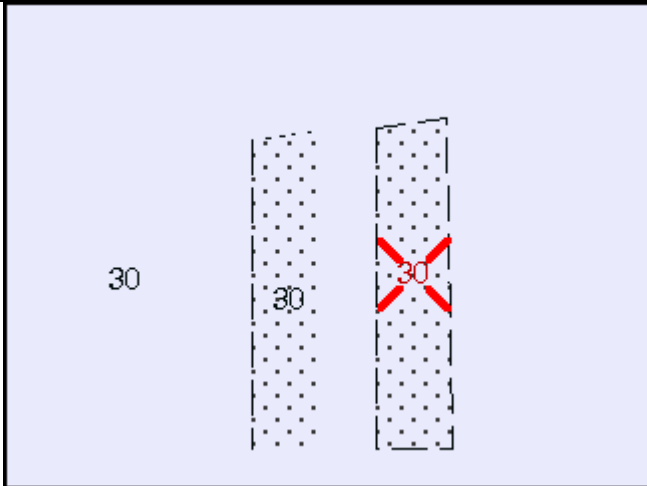
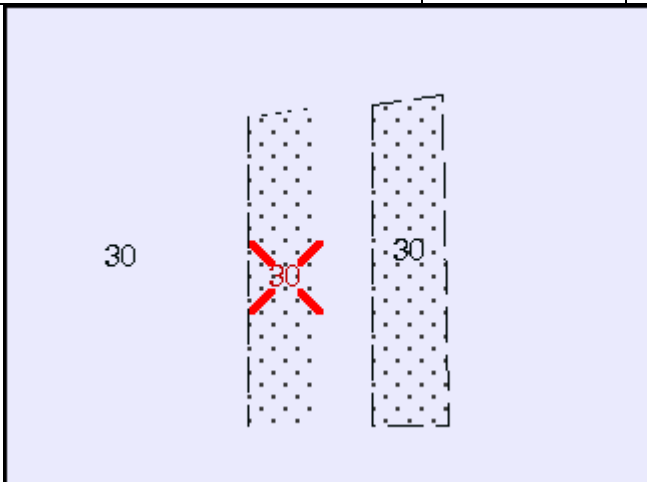
S-58 Description	For each RADSTA object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC present on RADSTA object.				
Solution	Remove VERDAT or VERACC.	Conformity	12.11.3		
Test Case No. 1	RADSTA (P) with attributes VERACC and VERDAT.				
Location	32°32'09.02"S 60°50'26.67"E	S57 Encoding	RDASTA (P)	VERACC=3 VERDAT=1	
Screen Capture					
Expected Test Results	T1760: 2 errors “VERDAT or VERACC present on RADSTA object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSEA or VERCCL” must be triggered.				
Dataset Name	AA500021	S-58 test No.	T1761	Type	E
S-58 Description	For each RADRFL object where VERDAT OR VERACC are present.				
Message	VERDAT or VERACC present on RADRFL object.				
Solution	Remove VERDAT or VERACC.	Conformity	12.12		
Test Case No. 1	RADRFL (P) with attributes VERACC and VERDAT.				
Location	32°32'12.14"S 60°50'33.68"E	S57 Encoding	RDARFL (P)	VERACC=3 VERDAT=1	
Screen Capture					

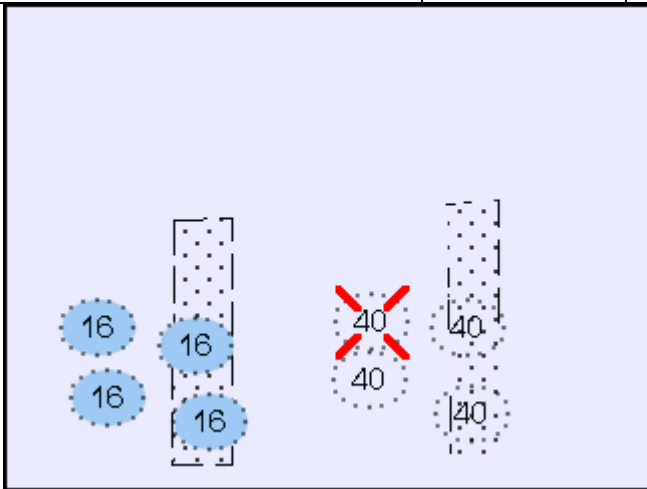
Expected Test Results	T1761: 2 errors “VERDAT or VERACC present on RADRFL object” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered. T1546: An additional error “Value for VERACC without value of VERCLR, VERCOP, VERCSA or VERCCL” must be triggered.				
Dataset Name	AA500021	S-58 test No.	T1762	Type	E
S-58 Description	For each RADRFL object which TOUCHES an object of type area or point having CONRAD as an allowable attribute.				
Message	Unnecessary RADRFL encoded.				
Solution	Remove unnecessary RADRFL and encode CONRAD = 3 on the associated object.		Conformity	12.12	
Test Case No. 1	RADRFL (P) on a depth area and offshore platform.				
Location	32°32'13.81"S 60°50'44.28"E	S57 Encoding	RADRFL (P)		
Screen Capture					
Expected Test Results	T1762: 2 errors “Unnecessary RADRFL encoded” must be triggered.				
Secondary Errors	None				
Test Case No. 2	RADRFL (P) on a PILPNT.				
Location	32°32'16.59"S 60°50'46.35"E	S57 Encoding	RADRFL (P) PILPNT (P)		
Screen Capture					
Expected Test Results	T1762: An error “Unnecessary RADRFL encoded” must not be triggered.				

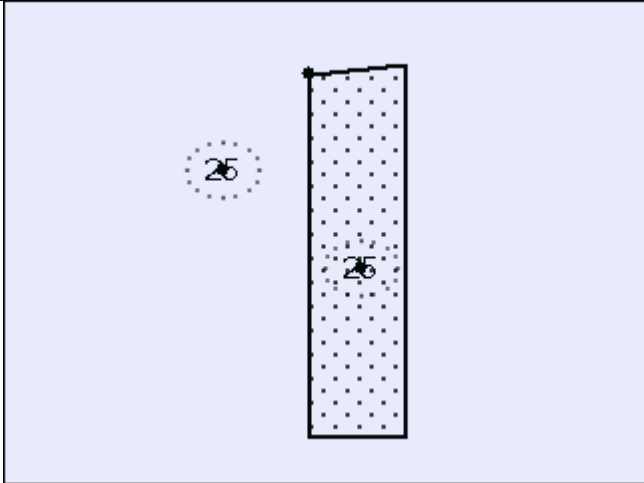
Secondary Errors	None				
Test Case No. 3	RADRFL (P) on a DAYMAR (P).				
Location	32°31'33.58"S 60°49'30.58"E	S57 Encoding	RADRFL (P) DAYMAR (P)		
Screen Capture					
Expected Test Results	T1762: An error “Unnecessary RADRFL encoded” must not be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1764	Type	E
S-58 Description	For each object where STATUS is equal to (1) [permanent] and PERSTA and/or PEREND are present.				
Message	PERSTA and/or PEREND are present for an object with STATUS=permanent.				
Solution	Remove PERSTA/PEREND if value of STATUS is valid.		Conformity	2.1.5.1 and logical consistency	
Test Case No. 1	BOYLAT with STATUS as well as PERSTA and/or PEREND encoded.				
Location	32°31'55.41"S 60°50'14.36"E	S57 Encoding	BOYLAT (P)	STATUS=1 PERSTA=21.03.— PERSTA=21.03.--	
Screen Capture					
Expected Test Results	T1764: An error “PERSTA and/or PEREND are present for an object with STATUS=permanent” must be triggered.				
Secondary Errors	T1516: An additional warning “PERSTA or PEREND not populated where STATUS equals 5” must be				

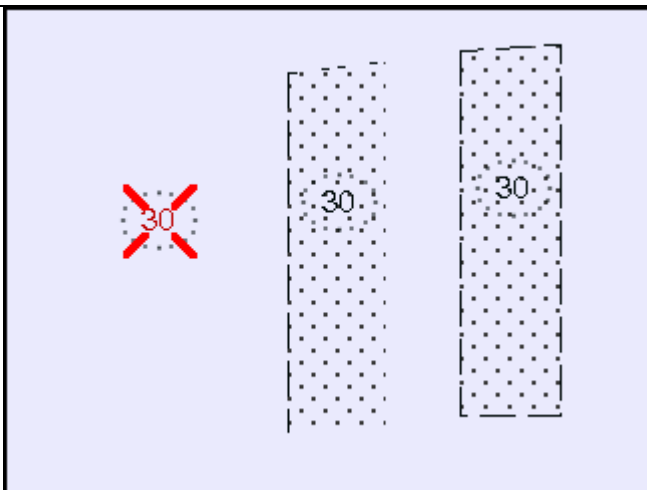
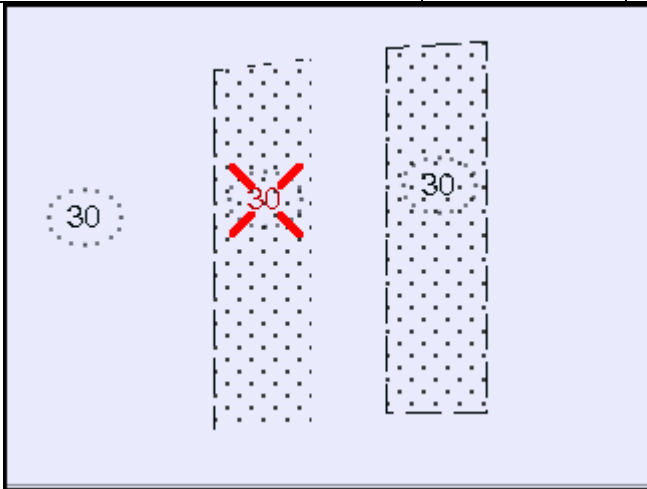
	triggered.				
Dataset Name	AA500021	S-58 test No.	T1768	Type	E
S-58 Description	For each SOUNDG object where the depth value is less than or equal to the DRVAL1 of the DEPRE or DRGARE it lies WITHIN AND DRVAL1 of that object is not Null.				
Message	SOUNDG object with depth less than or equal to the underlying value of DRVAL1.				
Solution	Amend DRVAL1 value of depth objects accordingly.	Conformity	5.3		
Test Case No. 1	SOUNDG objects with depth value: a) Less than or equal to DRVAL1 of the overlapping DEPRE (A) b) Less than or equal to DRVAL1 of the overlapping DRGARE (A)				
Location	32°31'44.03"S 60°52'04.86"E	S57 Encoding	SOUNDG (P) DRGARE (A) DEPRE (A)	8,9,8 and 9.1m DRVAL1=9 DRVAL1=9.1 DRVAL2=18.2	
Screen Capture					
Expected Test Results	T1768: 4 errors “SOUNDG object with depth less than or equal to the underlying value of DRVAL1” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1769	Type	E
S-58 Description	For each SOUNDG object where EXPSOU is not (3) [deeper than the range of the depth of the surrounding depth area] AND the depth value is greater than the DRVAL2 of the overlapping DEPRE object AND DRVAL2 of this object is not Null.				
Message	SOUNDG object deeper than DRVAL2 value without EXPSOU equal to (3).				
Solution	Populate appropriate value of EXPSOU.	Conformity	5.3		
Test Case No. 1	SOUNDG depth value is greater than DRVAL2 of the overlapping DEPRE (A).				
Location	32°32'50.92"S 60°50'57.47"E	S57 Encoding	SOUNDG (P)	40m	

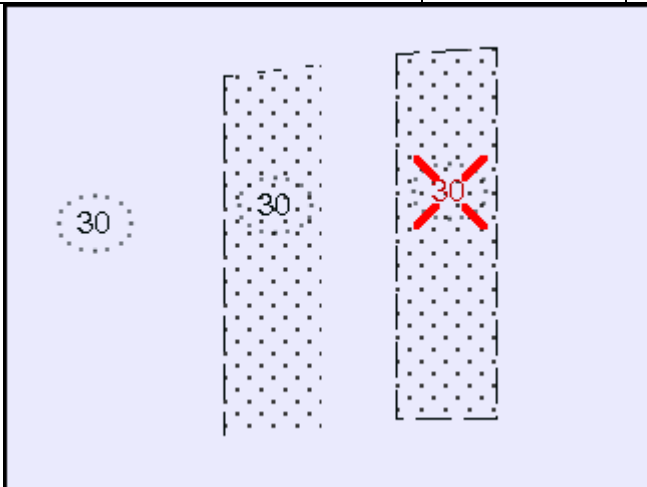
Screen Capture					
Expected Test Results	T1769: An error “SOUNDG object deeper than DRVAL2 value without EXPSOU equal to (3).” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1770a	Type	W
S-58 Description	For each SOUNDG object where EXPSOU = (3) AND the depth value is less than or equal to DRVAL2 of the DEPRE it is WITHIN where DRVAL2 is not unknown.				
Message	SOUNDG with EXPSOU = (3) and a depth value less than DRVAL2 of the underlying DEPRE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	5.3	
Test Case No. 1	SOUNDG depth value is less than DRVAL2 of the overlapping DEPRE (A).				
Location	32°32'52.89"S 60°51'30.07"E	S57 Encoding	SOUNDG (P) DEPRE (A)	EXPSOU=3 DRVAL1=18.2 DRVAL2=36.5	
Screen Capture					
Expected Test Results	T1770a: A warning “SOUNDG with EXPSOU = (3) and a depth value less than DRVAL2 of the underlying DEPRE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1770b	Type	W
S-58 Description	For each SOUNDG object where EXPSOU = (3) that the depth value is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.				

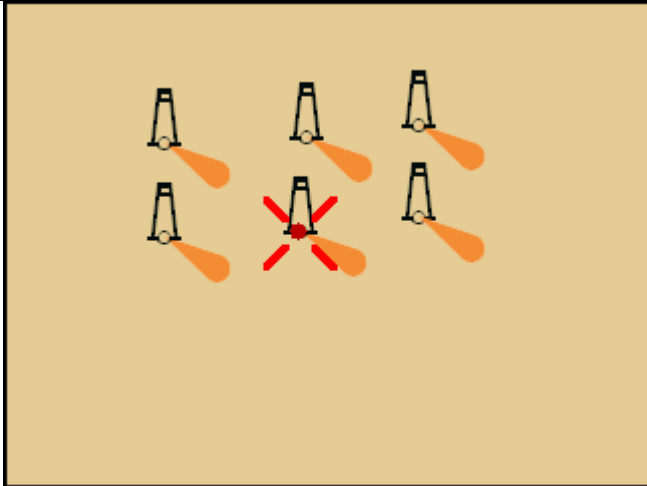
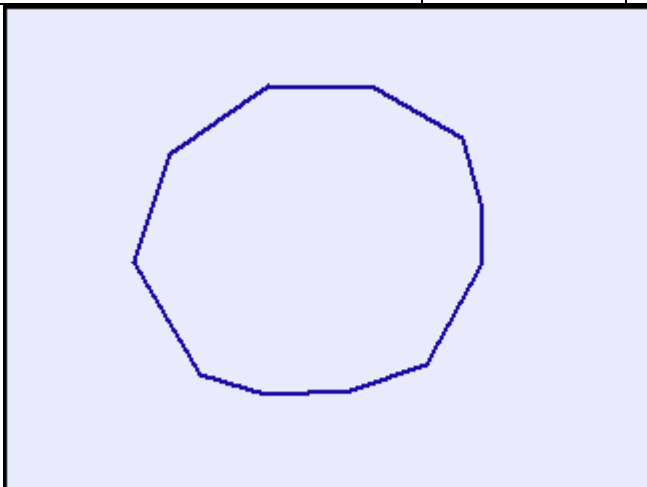
Message	SOUNDG with EXPSOU = (3) and a depth value less than DRVAL2 of the underlying DRGARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	5.3	
Test Case No. 1	SOUNDG depth value is less than DRVAL2 of the overlapping DRGARE (A) where both DRVAL1 and DRVAL2 are encoded.				
Location	32°32'52.76"S 60°51'50.00"E	S57 Encoding	SOUNDG (P) DRGARE (A)	EXPSOU=3 DRVAL1=31 DRVAL2=35	
Screen Capture					
Expected Test Results	T1770b: A warning “SOUNDG with EXPSOU = (3) and a depth value less than DRVAL2 of the underlying DRGARE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1770c	Type	W
S-58 Description	For each SOUNDG object where EXPSOU = (3) where the depth value is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.				
Message	SOUNDG with EXPSOU= (3) but with a depth value less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	5.3	
Test Case No. 1	SOUNDG depth value is less than DRVAL1 of the overlapping DRGARE (A).				
Location	32°32'54.16"S 60°51'41.53"E	S57 Encoding	SOUNDG (P) DRGARE (A)	EXPSOU=3 DRVAL1=35	
Screen Capture					

Expected Test Results	T1770c: A warning “SOUNDG with EXPSOU= (3) but with a depth value less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1772	Type	W
S-58 Description	For each UWTROC object where VALSOU is not Null AND EXPSOU is not present OR (1) [within the range of depth of the surrounding depth area] AND VALSOU is greater than the DRVAL2 OR less than or equal to DRVAL1 of the overlapping DEPARE OR DRGARE object AND DRVAL1 AND DRVAL2 of this object are not Null.				
Message	UWTROC with EXPSOU (1) or not present has a VALSOU outside the range of DRVAL1 and DRVAL2 the group 1 object.				
Solution	Populate appropriate value of EXPSOU.		Conformity	6.1.2	
Test Case No. 1	UWTROC with attributes EXPSOU and VALSOU: a) VALSOU is less than DRVAL1 of the overlapping DEPARE (A). b) VALSOU is greater than DRVAL2 of the overlapping DEPARE (A). c) VALSOU is less than DRVAL1 of the overlapping DRGARE (A). d) VALSOU is greater than DRVAL2 of the overlapping DRGARE (A). e) EXPSOU=1 and VALSOU are less than DRVAL1 of the overlapping DEPARE (A). f) EXPSOU=1 and VALSOU are greater than DRVAL2 of the overlapping DEPARE (A). g) EXPSOU=1 and VALSOU are less than DRVAL1 of the overlapping DRGARE (A). h) EXPSOU=1 and VALSOU are greater than DRVAL2 of the overlapping DRGARE (A).				
Location	32°33'01.57"S 60°50'03.67"E	S57 Encoding	UWTROC (P) DRGARE (A)	VALSOU=16 VALSOU=40 EXPSOU=1 DRVAL1=30 DRVAL2=35	
Screen Capture					
Expected Test Results	T1772: 8 warnings “UWTROC with EXPSOU (1) or not present has a VALSOU outside the range of DRVAL1 and DRVAL2 the group 1 object” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1773	Type	W
S-58 Description	For each UWTROC object where VALSOU is not Null AND EXPSOU = (2) AND VALSOU is greater than the value of DRVAL1 of the DEPARE or DRGARE object it is WITHIN AND DRVAL1 is not unknown.				
Message	UWTROC with EXPSOU = (2) WITHIN a DEPARE or DRGARE where the VALSOU is not shoaler than the range of the surrounding depth area.				

Solution	Amend EXPSOU to a logical value.		Conformity	6.1.2	
Test Case No. 1	UWTROC with attributes VALSOU and EXPSOU: a) VALSOU is greater than DRVAL1 of the overlapping DEPARE (A). b) VALSOU is greater than DRVAL1 of the overlapping DRGARE (A).				
Location	32°33'02.66"S 60°50'39.06"E	S57 Encoding	UWTROC (P) DRGARE (A) DEPARE (A)	VALSOU=25 EXPSOU=2 DRVAL1=20 DRVAL1=18.2 DRVAL2=36.5	
Screen Capture					
Expected Test Results	T1773: 2 warnings “UWTROC with EXPSOU = (2) WITHIN a DEPARE or DRGARE where the VALSOU is not shoaler than the range of the surrounding depth area” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1774a	Type	E
S-58 Description	For each UWTROC object where VALSOU is not Null AND EXPSOU = (3) AND the VALSOU is less than or equal to DRVAL2 of the DEPARE it is WITHIN where DRVAL2 is not unknown.				
Message	UWTROC with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.1.2	
Test Case No. 1	UWTROC with attributes VALSOU and EXPSOU where VALSOU is less than DRVAL2 of the overlapping DEPARE (A).				
Location	32°32'32.09"S 60°50'53.00"E	S57 Encoding	UWTROC (P) DEPARE (A)	VALSOU=30 EXPSOU=3 DRVAL1=18.2 DRVAL2=36.5	

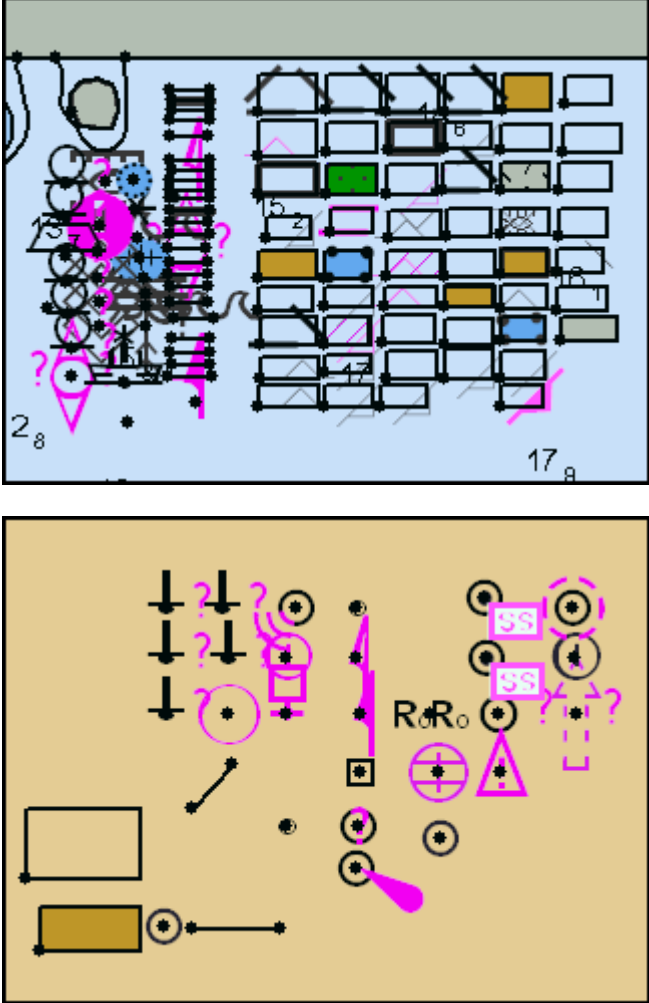
Screen Capture					
Expected Test Results	T1774a: An error “UWTROC with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DEPRE” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1774b	Type	E
S-58 Description	For each UWTROC object where EXPSOU = (3) that the depth value is less than or equal to the DRVAL2 of the DRGARE it is WITHIN where DRVAL1 AND DRVAL2 are not Null.				
Message	UWTROC with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE.				
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.1.2	
Test Case No. 2	UWTROC VALSOU is less than DRVAL2 of the overlapping DRGARE (A) where both DRVAL1 and DRVAL2 are encoded.				
Location	32°32'32.19"S 60°51'03.60"E	S57 Encoding	UWTROC (P) DRGARE	VALSOU=30 EXPSOU=3 DRVAL1=31 DRVAL2=35	
Screen Capture					
Expected Test Results	T1774b: An error “UWTROC with EXPSOU = (3) and a VALSOU less than DRVAL2 of the underlying DRGARE” must be triggered.				
Secondary Errors	None				

Dataset Name	AA500021	S-58 test No.	T1774c	Type	E														
S-58 Description	For each UWTROC object where EXPSOU = (3) where VALSOU is less than or equal to the DRVAL1 of the DRGARE object it is WITHIN where DRVAL2 is not present.																		
Message	UWTROC with EXPSOU= (3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated.																		
Solution	Amend value of EXPSOU to a logical value.		Conformity	6.1.2															
Test Case No. 3	UWTROC VALSOU is less than DRVAL1 of the overlapping DRGARE (A).																		
Location	32°32'31.21"S 60°51'13.49"E	S57 Encoding	UWTROC (P) DRGARE (A)	VALSOU=30 EXPSOU=3 DRVAL1=31															
Screen Capture																			
Expected Test Results	T1774c: An error “UWTROC with EXPSOU= (3) but with a VALSOU less than DRVAL1 of the underlying DRGARE when only DRVAL1 is populated” must be triggered.																		
Secondary Errors	None																		
Dataset Name	AA500021	S-58 test No.	T1776	Type	W														
S-58 Description	For each LIGHTS object where the value of LITCHR is as listed in the table below AND SIGGRP is not as listed in the table below. <table><tr><td>LITCHR</td><td>SIGGRP</td></tr><tr><td>6</td><td>(1)</td></tr><tr><td>7</td><td>(1)</td></tr><tr><td>9</td><td>()</td></tr><tr><td>10</td><td>()</td></tr><tr><td>11</td><td>()</td></tr><tr><td>28</td><td>()</td></tr></table>					LITCHR	SIGGRP	6	(1)	7	(1)	9	()	10	()	11	()	28	()
LITCHR	SIGGRP																		
6	(1)																		
7	(1)																		
9	()																		
10	()																		
11	()																		
28	()																		
Message	Values of LITCHR and SIGGRP are not consistent.																		
Solution	Amend values to be consistent.		Conformity	12.8.3															
Test Case No. 1	LIGHTS with attribute LITCHR (6,7,9,10,11 and 28) and SIGGRP.																		
Location	32°31'17.24"S 60°49'28.28"E	S57 Encoding	LIGHTS (P)	LITCHR=6,7,9,10,11,28 SIGGRP=UNKNOWN SIGPER=UNKNOWN															

Screen Capture					
Expected Test Results	T1776: 6 warnings “Values of LITCHR and SIGGRP are not consistent” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500021	S-58 test No.	T1779	Type	C
S-58 Description	For each DEPART object where DRVAL1 is equal to DRVAL2.				
Message	DRVAL1 is equal to DRVAL2 on a DEPART object.				
Solution	Amend DRVAL1 or DRVAL2 to logical values.		Conformity	5.4 and logical consistency	
Test Case No. 1	DEPART (A) where DRVAL1 and DRVAL2 have the same value.				
Location	32°31'58.45"S 60°49'56.93"E	S57 Encoding	DEPART (A)	DRVAL1=18.2 DRVAL2=18.2	
Screen Capture					
Expected Test Results	T1779: An error “DRVAL1 is equal to DRVAL2 on a DEPART object” must be triggered.				
Secondary Errors	T1771: An additional error “VALDCO on DEPCNT between two DEPART objects has illogical value” must be triggered.				
Dataset Name	AA500021	S-58 test No.	T0507	Type	C
S-58 Description	If any mandatory attributes are not populated.				
Message	Mandatory attributes are not populated.				

Solution	Populate mandatory attributes.		Conformity	3.5.2 and SuppNo2 Ch.4 (3.5.2.1)
Test Case No. 1	Objects without mandatory attributes have been created as listed in the 4th column below.			
Location	32°31'24.04"S 60°50'09.53"E 32°31'22.18"S 60°49'35.56"E	S57 Encoding	ADMARE (A) BCNCAR (P) BCNISD (P) BCNLAT (P) BCNSAW (P) BCNSPP (P) BERTHS (A, L, P) BOYCAR (P) BOYINB (P) BOYISD (P) BOYLAT (P) BOYSAW (P) BOYSPP (P) BRIDGE (A, L, P) CBLOHD (L) CONVYR (A, L) CONZNE (A) COSARE (A) CTNARE (A, P) CURENT (P) CUSZNE (A) DAYMAR (P) DEPARE (A, L) DEPCNT (L) DRGARE (A) DWRTCL (L) DWRTPT (A) EXEZNE (A) FERYRT (A, L) FOGSIG (P) FSHZNE (A) GATCON (A, L, P) HRBFAC (A, P) ICEARE (A) LITVES (P) LIGHTS (P) LITFLT (P) LNDELV (L, P) LNDMRK (A, L, P) LNDRGN (A, P) LOCMAG (A, L, P) MAGVAR (A, L, P) MARCUL (A, L, P)	

			MORFAC (A, L, P) NAVLNE (L) OBSTRN (A, L, P) PIPOHD (L) PRCARE (A) PRDARE (A, P) PYLONS (A, P) RADLNE (L) RCRTCL (L) RCTLPT (L, P) RDOCAL (L, P) RECTRC (A, L) RESARE (A) RTPBCN (P) SBDARE (A, L, P) SEAARE (A, P) SISTAT (P) SISTAW (P) SMCFAC (A, P) STSLNE (L) SWPARE (A) TESARE (A) TOPMAR (P) TSSLPT (A) TWRTPPT (A) UWTROC (P) VEGATN (A, L, P) WATTUR(A,L,P) WRECKS (A, P) M_ACCY (A) M_COVR (A) M_CSCL (A) M_HOPA (A) M_NSYS (A) M_QUAL (A) M_SDAT (A) M_VDAT (A) T_TIMS (A, P) T_NHMN (A, P) T_HMON (A, P) TS_FEB (P) TS_PAD (P) TS_PNH (A, P) TS_PRH (A, P) TS_TIS (A, P) ARCSLN (A) ASLXIS (L) NEWOBJ (A, L, P)	
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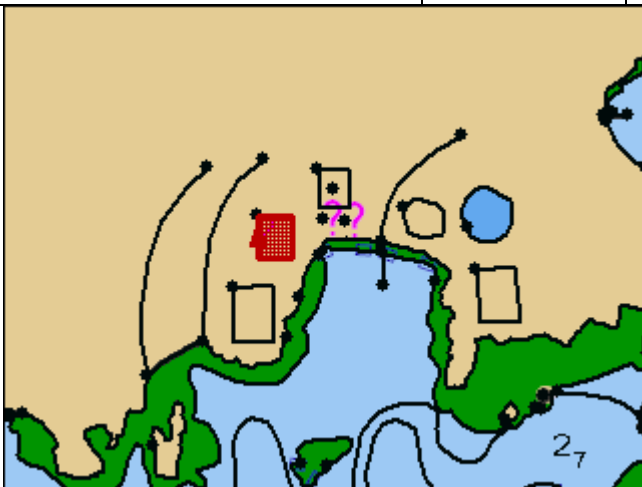
<p>Screen Capture</p>	
<p>Expected Test Results</p>	<p>T0507: 223 errors "Mandatory attributes are not populated" must be triggered.</p>
<p>Secondary Errors</p>	<p>T0509: 23 additional errors "Mandatory attribute has not been populated with a value" must be triggered.</p> <p>T0566: 3 additional errors "Invalid use of New Object" must be triggered.</p> <p>T0562: 3 additional errors "CLSNAM not included in INFORM or TXTDSC for a NEWOBJ object" must be triggered.</p> <p>T0508b: An additional error "COLPAT is populated without multiple COLOUR values" must be triggered.</p> <p>T1558: 2 additional errors "T_NHNM object where the value of T_MTOD is not (3)" must be triggered.</p> <p>T1560: 2 additional errors "TS_PRH object has a value other than (1) or (2) for T_MTOD" must be triggered.</p> <p>T1561: 2 additional errors "For TS_PNH T_MTOD is not (3) (time and height difference non-harmonic method)" must be triggered.</p> <p>T1797: 5 additional errors "Object, geometry and attribute combination which do not display in ECDIS present" must be triggered.</p> <p>T1671: An additional warning "Line object touching object with the same attribute values except SORIND, SORDAT and SCAMIN" must be triggered.</p> <p>T1726: An additional error "Data coverage not completely covered by M_NSYS objects with a value for MARSYS" must be triggered.</p> <p>T1765b: 3 additional warnings "M_QUAL and M_ACCY objects overlap" must be triggered.</p>


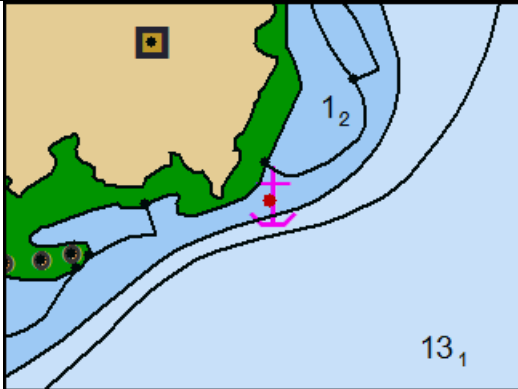
	<p>T0554: An additional error "Edge of M_COVR coverage available referenced by more than one Group 1 object" must be triggered.</p> <p>T0519a: An additional error "Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1)" must be triggered.</p> <p>T1557: An additional error "T_HMON object where the value of T_MTOD is not (1) or (2)" must be triggered.</p> <p>T1729: 4 additional errors "Component of an aid to navigation does not conform to the IALA system defined on the object or in M_NSYS" must be triggered.</p> <p>T1512b: An additional error "Object with depth information overlaps multiple M_SDAT objects" must be triggered.</p> <p>T1657: An additional warning "Illogical attribute values for UWTROC object" must be triggered.</p> <p>T1669: An additional error "OBSTRN object with illogical attribute value combinations" must be triggered.</p> <p>T1719: An additional warning "Illogical attribute combination for MARCUL" must be triggered.</p> <p>T1663: An additional warning "WRECKS object with illogical attribute combination" must be triggered.</p>
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2.22. Test Dataset: AA500022

List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
504	For each object of type CANBNK, LAKSHR, RIVBNK, SQUARE, M_HDAT, M_PROD, M_UNIT, C_STAC, \$AREAS, \$LINES, \$CSYMB, \$COMPS, \$TEXTS.
73a	For each attribute value which contains a leading or trailing space.
73b	For each attribute value of type list which contains spaces.
523	Where HDAT does not equal 2 [WGS 84].

Dataset Name	AA500022	S-58 test No.	T0504	TYPE	C
S-58 Description	For each object of type CANBNK, LAKSHR, RIVBNK, SQUARE, M_HDAT, M_PROD, M_UNIT, C_STAC, \$AREAS, \$LINES, \$CSYMB, \$COMPS, \$TEXTS.				
Message	Prohibited objects exist within the dataset.				
Solution	Delete prohibited objects.		Conformity	3.2	
Test Case No. 1	Prohibited object classes for ENC.				
Location	32°31'29.49"S 60°47'18.91"E	S57 Encoding	\$AREAS (A) \$LINES (L) \$TEXTS (P) \$CSYMB (P) \$COMPS (P) C_STAC SQUARE (A) RIVBNK (L) CANBNK (L) LAKSHR (L) M_HDAT (A) M_PROD (A) M_UNIT (A)		
Screen Capture					
Expected Test Results	T0504: 13 errors “Prohibited objects exist within the dataset” must be triggered.				
Secondary Errors	T0545: An additional error “Object WITHIN an area of no coverage” must be triggered.				
Dataset Name	AA500022	S-58 test No.	T0073a	TYPE	W
S-58 Description	For each attribute value which contains a leading or trailing space.				
Message	Attribute value contains leading or trailing spaces.				
Solution	Remove leading or trailing spaces.		Conformity	Logical consistency	
Test Case No. 1	BUISGL with leading space in OBJNAM and trailing space in INFORM.				
Location	32°31'44.88"S 60°47'51.76"E	S57 Encoding	BUISGL	OBJANM= TEST INFORM=TEST	

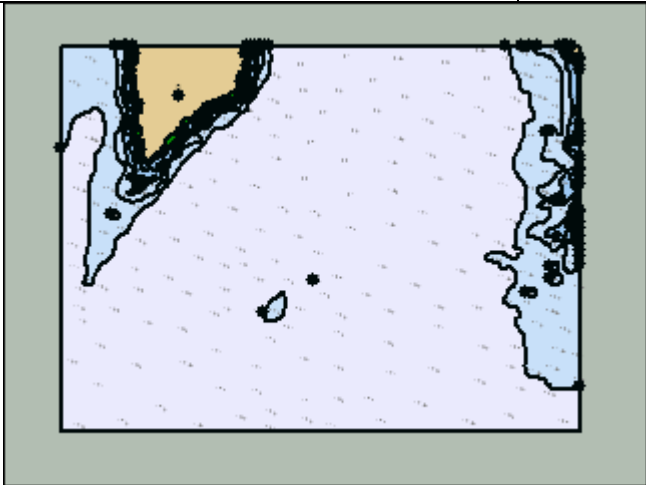
Screen Capture					
Expected Test Results	T0073a: 2 warnings “Attribute value contains leading or trailing spaces” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500022	S-58 test No.	T0073b	TYPE	W
S-58 Description	For each attribute value of type list which contains spaces.				
Message	List attribute value contains spaces.				
Solution	Remove spaces.	Conformity	Logical consistency		
Test Case No. 2	ACHARE (P) with space in CATACH.				
Location	32°31'47.19"S 60°47'53.78"E	S57 Encoding	ACHARE (P)	CATACH=1 1	
Screen Capture					
Expected Test Results	T0073b: A warning “List attribute value contains spaces” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500022	S-58 test No.	T0523	TYPE	C
S-58 Description	Where HDAT does not equal 2 [WGS 84].				
Message	HDAT does not equal 2 WGS 84.				
Solution	Ensure HDAT equals 2 WGS 84.	Conformity	4.1		
Test Case No. 1	HDAT changed to 4 (Potsdam Datum).				
Location	-	S57 Encoding	DSPM	HDAT=4	

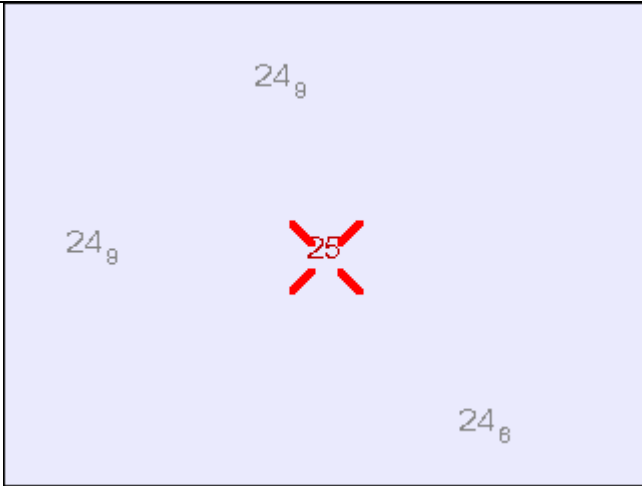
Screen Capture	SID Field DSPM Field DSSI Field Geodetic Param			
	Title		Value	
	Horizontal geodetic datum [HDAT]		Potsdam Datum	
	Vertical datum [VDAT]		Mean high water	
	Sounding datum [SDAT]		Mean lower low	
	Compilation scale of data [CSCL]		20000	
	Units of depth measurement [DUNI]		metres	
	Units of height measurement [HUNI]		metres	
	Units of positional accuracy [PUNI]		metres	
	Coordinate units [COUN]		LL - Latitude / Longitude	
Expected Test Results	T0523: An error "HDAT does not equal 2 WGS 84" must be triggered.			
Secondary Errors	None			

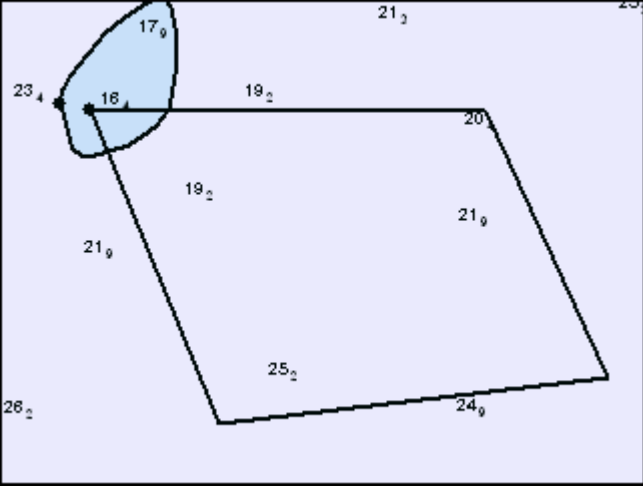
2.23. Test Dataset: AA500023

List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
505	If objects of type M_NSYS, M_COVR do not exist within the dataset.
512	For each object with an attribute of type Float or Integer where the value contains zeroes before the first numerical digit or after the last numerical digit.
1010	If the CRC value in the catalogue file does not equal that in the dataset.
545	For each object which does not have a valid object class code as defined by the Object Catalogue and S-57 Supplements No 2.

Dataset Name	AA500023	S-58 test No.	T0505	Type	C
S-58 Description	If objects of type M_NSYS, M_COVR do not exist within the dataset.				
Message	Mandatory meta objects are missing				
Solution	Include mandatory meta objects M_QUAL and M_NSYS	Conformity	3.4		
Test Case No. 1	Dataset without Meta objects M_COVR, M_QUAL & M_NYS.				
Location	32°32'08.26"S 60°44'51.13"E	S57 Encoding			
Screen Capture					
Expected Test Results	T0505: 3 errors “Mandatory meta objects are missing” must be triggered.				
Secondary Errors	T1726: An additional error “Data coverage not completely covered by M_NSYS objects with a value for MARSYS” must be triggered. T1565: 3 additional errors “LNDARE not enclosed by appropriate linear or area object” must be triggered. T0011: 47 additional errors “Edge with USAG = 3 [exterior boundary truncated by the data limit] does not reference an M_COVR object” must be triggered. T0549: 39 additional errors “DEPARE or DRGARE objects not covered by an M_QUAL object” must be triggered. T0548: 6 additional errors “Cell not entirely covered by M_COVR objects” must be triggered. T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered.				
Dataset Name	AA500023	S-58 test No.	T0512	Type	E
S-58 Description	For each object with an attribute of type Float or Integer where the value contains zeroes before the first numerical digit or after the last numerical digit.				
Message	Values have been padded with non-significant zeroes. E.g.: For a signal period of 2.5 sec, the value of SIGPER must be 2.5 and not 02.500.				
Solution	Remove non-significant zeroes. E.g.: For a signal period of 2.5 sec, the value of SIGPER must be 2.5 and not 02.500.	Conformity	3.5.4		
Test Case No. 1	Attributed SOUNDG.				
Location	32°32'19.96"S 60°44'32.98"E	S57 Encoding	SOUNDG (P)	AGENCY=20.00 0000000000	

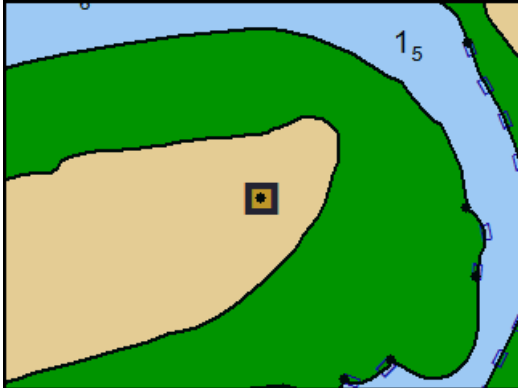
Screen Capture					
Expected Test Results	T0512: An error “Values have been padded with non-significant zeroes. E.g.: For a signal period of 2.5 sec, the value of SIGPER must be 2.5 and not 02.500” must be triggered.				
Secondary Errors	T0547: An additional error “Attribute not permitted on object class” must be triggered.				
Dataset Name	AA500023	S-58 test No.	T1010	Type	C
S-58 Description	If the CRC value in the catalogue file does not equal that in the dataset.				
Message	CRC values do not match.				
Solution	Correct CRC value.	Conformity	5.9.1		
Test Case No. 1	N/A				
Location	N/A	S57 Encoding	CATALOG.0 31		
Screen Capture	N/A				
Expected Test Results	T1010: An error “CRC values do not match” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500023	S-58 test No.	T0545	Type	C
S-58 Description	For each object which does not have a valid object class code as defined by the Object Catalogue and S-57 Supplements No 2.				
Message	Object has invalid object class code.				
Solution	Correct object class code.	Conformity	3.2 and Supplement No2 Ch.2.		
Test Case No. 1	Security Classification Information area.				
Location	32°32'41.36"S 60°44'56.31"E	S57 Encoding	m_class (A)		

<p>Screen Capture</p>		
<p>Expected Test Results</p>	<p>T0545: An error "Object has invalid object class code" must be triggered.</p>	
<p>Secondary Errors</p>	<p>T0021: An additional error "Vector record pointer field (VRPT) not referenced by an edge vector record" must be triggered. T0028: An additional error "DSSI field record count incorrect" must be triggered. T0090b: 4 additional warnings "Invalid DDR (Data Descriptive Record) in EN file" must be triggered. T0504: An additional error "Prohibited objects exist within the dataset" must be triggered.</p>	

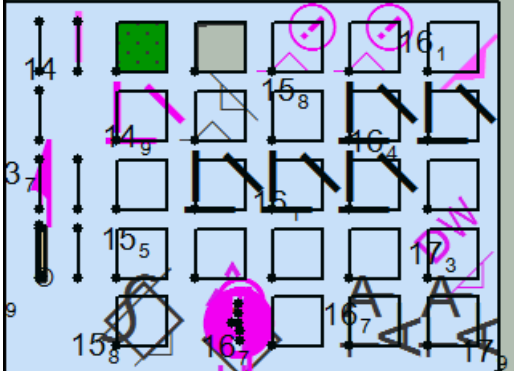
2.24. Test Dataset: AA500024

List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
1001	For each object which references a text/graphic file and the text/graphic file is not present in the exchange set.
509	<p>For all objects listed below where the attribute stated is 'Null' or 'not present';</p> <p>ARCSLN: NATION ASLXIS: NATION CTNARE: INFORM or TXTDSC DEPARE: DRVAL1 and DRVAL2 DRGARE: DRVAL1 NEWOBJ: CLSDEF and CLSNAM SWPARE: DRVAL1 DEPCNT: VALDCO LNDELV: ELEVAT MAGVAR: VALMAG CONZNE: NATION COSARE: NATION CUSZNE: NATION EXEZNE: NATION FSHZNE: NATION STSLNE: NATION TESARE: NATION M_COVR: CATCOV M_CSCL: CSCALE M_QUAL: CATZOC M_SDAT: VERDAT M_VDAT: VERDAT TS_PAD: TS_TSP DWRTPPT: ORIENT DWRRTCL: ORIENT M_NSYS: MARSYS or ORIENT RCTLPT: ORIENT. `</p>

Dataset Name	AA500024	S-58 test No.	T1001	Type	C
S-58 Description	For each object which references a text/graphic file and the text/graphic file is not present in the exchange set.				
Message	Text or graphic file referenced by update is not present.				
Solution	Add text or graphic files to exchange set.	Conformity			
Test Case No. 1	BUISSL (P) with TXTDSC and PICREP.				
Location	32°32'13.38"S 60°41'26.40"E	S57 Encoding	BUISSL (P)	TXTDSC=US654321.TXT PICREP=US654321.TIF	
Screen Capture					
Expected Test Results	T0068: 2 warnings “Text or graphic file referenced by update is not present” must be triggered.				
Secondary error	None				
Dataset Name	AA500024	S-58 test No.	T0509	Type	E
S-58 Description	For all objects listed below where the attribute stated is 'Null' or 'not present'; ARCSLN: NATION ASLXIS: NATION CTNARE: INFORM or TXTDSC DEPARE: DRVAL1 and DRVAL2 DRGARE: DRVAL1 NEWOBJ: CLSDEF and CLSNAM SWPARE: DRVAL1 DEPCNT: VALDCO LNDELV: ELEVAT MAGVAR: VALMAG CONZNE: NATION COSARE: NATION CUSZNE: NATION EXEZNE: NATION FSHZNE: NATION STSLNE: NATION TESARE: NATION M_COVR: CATCOV M_CSCL: CSCALE M_QUAL: CATZOC M_SDAT: VERDAT M_VDAT: VERDAT TS_PAD: TS_TSP				

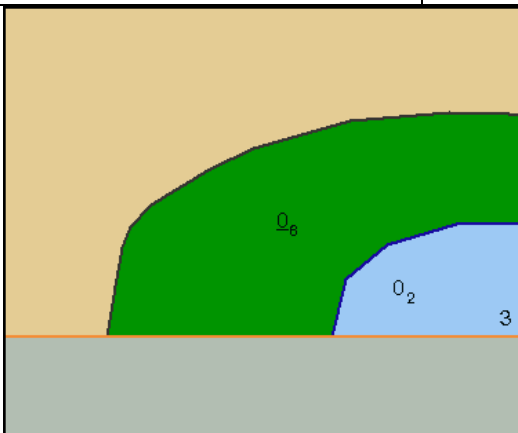
	DWRTPPT: ORIENT DWRRTCL: ORIENT M_NSYS: MARSYS or ORIENT RCTLPT: ORIENT.			
Message	Mandatory attribute has not been populated with a value.			
Solution	Populate mandatory attributes; in these cases the object is meaningless without this value.	Conformity	3.5.2 and Supplement No2 Ch.4 (3.5.2.1).	
Test Case No. 1	Dataset containing all of the objects listed above.			
Location	32°31'30.67"S 60°43'09.38"E	S57 Encoding	ARCSLN (A) ASLXIS (L) CTNARE (A, P) DEPARE (A, L) DRGARE (A) NEWOBJ (A, L, P) SWPARE (A) DEPCNT (L) LNDELV (L, P) MAGVAR (A, L, P) CONZNE (A) COSARE (A) CUSZNE (A) EXEZNE (A) FSHZNE (A) STSLNE (L) TESARE (A) M_COVR (A) M_CSCL (A) M_QUAL (A) M_SDAT (A) M_VDAT (A) TS_PAD (A, P) DWRTPPT (A) DWRRTCL (L) M_NSYS (A) RCTLPT (A, P)	NATION=UNKNOWN NATION=UNKNOWN INFORM=UNKNOWN TXTDSC=UNKNOWN DRVAL1=UNKNOWN DRVAL2=UNKNOWN DRVAL1=UNKNOWN CLSDEF=UNKNOWN CLSNAM=UNKNOWN DRVAL1=UNKNOWN VALDCO=UNKNOWN ELEVAT=UNKNOWN VALMAG=UNKNOWN NATION=UNKNOWN NATION=UNKNOWN NATION=UNKNOWN NATION=UNKNOWN NATION=UNKNOWN NATION=UNKNOWN CATCOV=UNKNOWN CSCALE=UNKNOWN CATZOC=UNKNOWN VERDAT=UNKNOWN VERDAT=UNKNOWN TS_TSP=UNKNOWN ORIENT=UNKNOWN ORIENT=UNKNOWN MARSYS=UNKNOWN ORIENT=UNKNOWN ORIENT=UNKNOWN

Screen Capture	
Expected Test Results	T0509: 42 errors "Mandatory attribute has not been populated with a value" must be triggered.
Secondary error	<p>T0043: An additional warning "DEPCNT does not coincide with two group 1 objects" must be triggered.</p> <p>T0074: An additional error "Floating DEPCNT WITHIN a DEPCNT with VALDCO less than DRVAL1 or greater than DRVAL2" must be triggered.</p> <p>T0548: An additional error "Cell not entirely covered by M_COVR objects" must be triggered.</p> <p>T1726: An additional error "Data coverage not completely covered by M_NSYS objects with a value for MARSYS" must be triggered.</p> <p>T0554: An additional error "Edge of M_COVR coverage available referenced by more than one Group 1 object" must be triggered.</p> <p>T0519a: An additional error "Skin of the earth (TG1) objects do not cover the data coverage (M_COVR=1)" must be triggered.</p> <p>T1771: An additional error "VALDCO on DEPCNT between two DEPCNT objects has illogical value" must be triggered.</p> <p>T0566: 3 additional errors "Invalid use of New Object" must be triggered.</p> <p>T0562: 3 additional errors "CLSNAM not included in INFORM or TXTDSC for a NEWOBJ object" must be triggered.</p> <p>T1005: 2 additional errors "Referenced files are missing or their names are non-conformant" must be triggered.</p> <p>T1779: An additional error "DRVAL1 is equal to DRVAL2 on a DEPCNT object" must be triggered.</p>
Remarks	"xxxxxx" indicates respective attribute acronym.

2.25. Test Dataset: AA500025

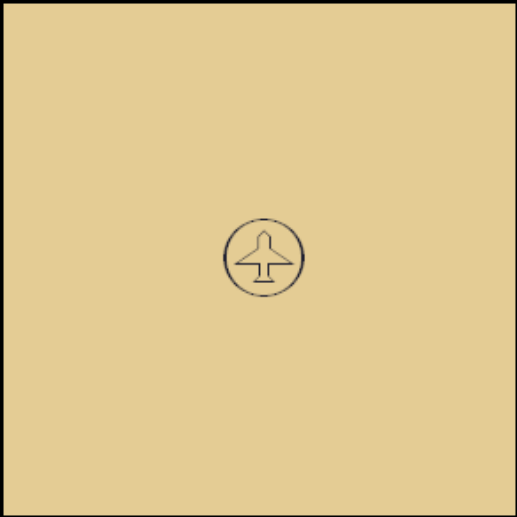
List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
36a	For each update record of type feature or vector which is DELETE and contains further fields.
36b	For each update record of type feature or vector which is MODIFY/INSERT and contains no further fields.

Dataset Name	AA500025; AA500025.001	S-58 test No.	T036a	Type	C
S-58 Description	For each update record of type feature or vector which is DELETE and contains further fields.				
Message	DELETE update contains additional fields.				
Solution	Remove additional fields from update record.	Conformity	Part 3 (8.4.2.2) and (8.4.3.1)		
Test Case No. 1	SOUNDG deleted through update but retained FSPT.				
Location	32°29'23.63"S 60°51'59.61"E	S57 Encoding	SOUNDG (P)	DEPTH = -0.6	
Screen Capture					
Expected Test Results	T0036: An error “DELETE update contains additional fields” must be triggered.				
Secondary Errors	None				

Dataset Name	AA500025; AA500025.002	S-58 test No.	T0036b	Type	C
S-58 Description	For each update record of type feature or vector which is MODIFY/INSERT and contains no further fields.				
Message	INSERT update does not contain additional fields.				
Solution	Add additional fields to update record.	Conformity	Part 3 (8.4.2.2) and (8.4.3.1).		
Test Case No. 1	Inserted BUISGL, AIRARE (P), LNDMRK (P). The LNDMRK (P) has been created without FSPT.				
Location	VI-0000000018 (no feature object created)	S57 Encoding	LNDMRK (P)	CATLMK= 17 CONVIS=2	
Screen Capture	Nil				
Expected Test Results	T0036b: An error “INSERT update does not contain additional fields” must be triggered.				
Secondary Errors	T0054b: An additional error “CRANES, BUISGL, FORSTC, LNDMRK, DAYMAR or SILTNK not situated on a suitable supporting object” must be triggered.				

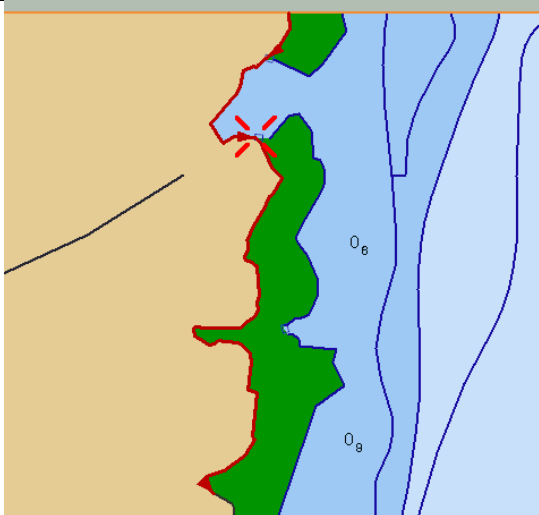
Dataset Name	AA500025; AA500025.003	S-58 test No.	T0036b	Type	C
S-58 Description	For each update record of type feature or vector which is MODIFY/INSERT and contains no further fields.				
Message	MODIFY update does not contain additional fields.				
Solution	Add additional fields to update record.	Conformity	Part 3 (8.4.2.2) and (8.4.3.1).		
Test Case No. 1	Update created with FOID which does not match the base dataset, it does match RCNM and RCID.				

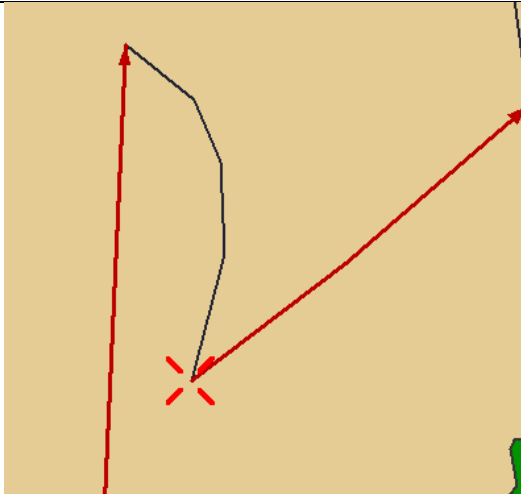
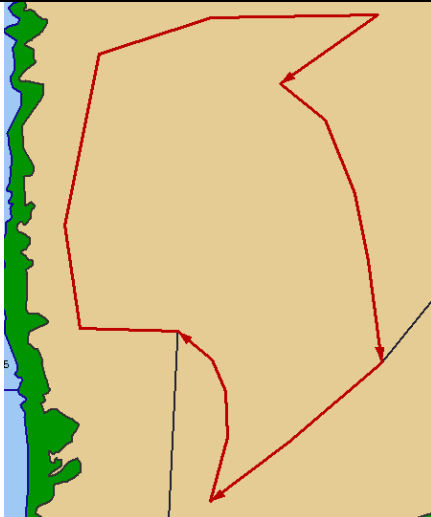
Location	32°29'21.92"S 60°52'12.05"E	S57 Encoding	AIRARE	CATAIR=1
Screen Capture				
Expected Test Results	T0036b: An error "MODIFY update does not contain additional fields" must be triggered.			
Secondary Errors	T0007: 3 additional errors "Illegal values of AGEN, FIDN or FIDS" must be triggered. T1004: An additional error "Invalid value of Record Name (RCNM)" must be triggered.			

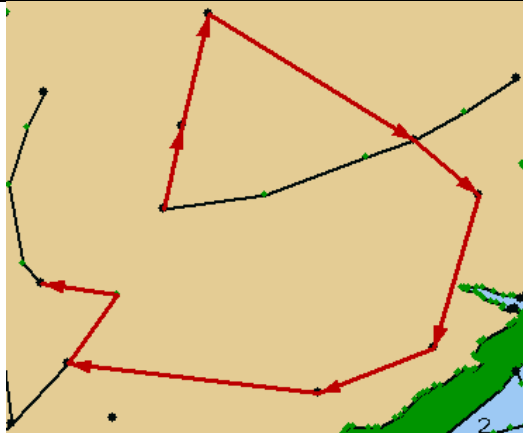
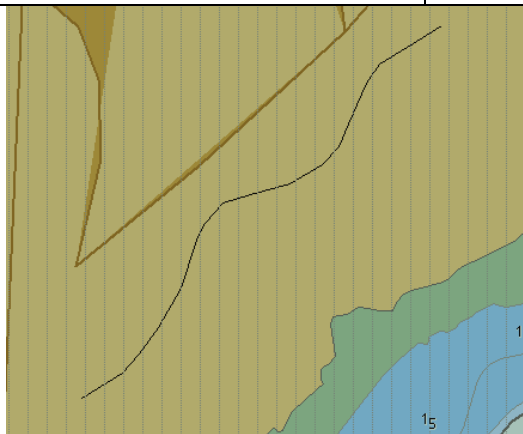
2.26. Test Dataset: AA500026

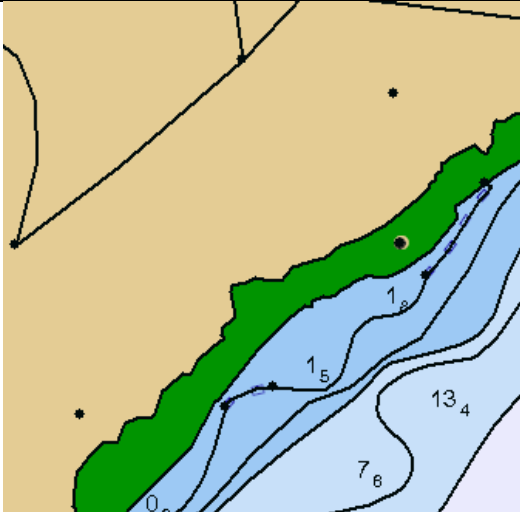
List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
13a	For each feature of Type line which references multiple edges where the vector records are not referenced sequentially.
13b	For each feature of type line which references multiple edges where the end node of a vector record is not identical to the start node of the following vector record.
13c	For each feature of type area where a polygon ring references multiple edges where the vector records are not referenced sequentially.
13d	For each feature of type area which references multiple edges where the end node of a vector record is not identical to the start node of the following vector record.
25a	For each edge where the beginning and end are not encoded as connected nodes.
25b	For each connected node where the geometry is not part of an edge.
1523a	For each update record of type feature or vector which is MODIFY/INSERT and contains no further fields.

Dataset Name	AA500026	S-58 test No.	T0013a	Type	C
S-58 Description	For each feature of type line which references multiple edges where the vector records are not referenced sequentially.				
Message	Edges are not referenced sequentially.				
Solution	Amend records to reference edges sequentially.	Conformity	Part 3 (4.7.2)		
Test Case No. 1	COALNE edges have not been created in sequence.				
Location	32°31'18.40"S 60°44'33.07"E	S57 Encoding	COALNE		
Screen Capture					
Expected Test Results	T0013a: An error “Edges are not referenced sequentially” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500026	S-58 test No.	T0013b	Type	C
S-58 Description	For each feature of type line which references multiple edges where the end node of a vector record is not identical to the start node of the following vector record.				
Message	Sequential edges do not have the same start and end nodes.				
Solution	Ensure start and end nodes of sequential edges match.	Conformity	Part 3 (4.7.2)		
Test Case No. 1	ROADWY end node is not identical to the start node of the following vector.				
Location	32°31'29.83"S 60°44'02.66"E	S57 Encoding	ROADWY		

Screen Capture					
Expected Test Results	T0013b: An error “Sequential edges do not have the same start and end nodes” must be triggered.				
Secondary Errors	None				
Dataset Name	AA500026	S-58 test No.	T0013c	Type	C
S-58 Description	For each feature of type area where a polygon ring references multiple edges where the vector records are not referenced sequentially.				
Message	Edges are not referenced sequentially.				
Solution	Amend records to reference edges sequentially.	Conformity	Part 3 (4.7.2)		
Test Case No. 1	BUAARE vector records have not been created sequentially.				
Location	32°31'25.16"S 60°44'05.29"E	S57 Encoding	BUAARE		
Screen Capture					
Expected Test Results	T0013c: An error “Edges are not referenced sequentially” must be triggered.				
Secondary Errors	T0015: An additional error “First and last edge of an area boundary do not meet at a common connected node” must be triggered.				
Dataset Name	AA500026	S-58 test No.	T0013d	Type	C

S-58 Description	For each feature of type area which references multiple edges where the end node of a vector record is not identical to the start node of the following vector record.				
Message	Sequential edges do not have the same start and end nodes.				
Solution	Ensure start and end nodes of sequential edges match.	Conformity	Part 3 (4.7.2)		
Test Case No. 1	BUAARE without sequential nodes.				
Location	32°31'25.21"S 60°44'23.30"E	S57 Encoding	BUAARE		
Screen Capture					
Expected Test Results	T0013d: An error “Sequential edges do not have the same start and end nodes” must be triggered.				
Secondary Errors	T0015: An additional error “First and last edge of an area boundary do not meet at a common connected node” must be triggered.				
Dataset Name	AA500026	S-58 test No.	T0025a	Type	C
S-58 Description	For each edge where the beginning and end are not encoded as connected nodes.				
Message	Beginning or end nodes of an edge are not encoded as connected nodes.				
Solution	Amend beginning or end nodes to be connected nodes.	Conformity	Part 3 (5.1.4.4)		
Test Case No. 1	RIVERS (L) without beginning and ending nodes.				
Location	32°31.58'S 60°44.15'E	S57 Encoding	RIVERS		
Screen Capture					
Expected Test Results	T0025a: An error “Beginning or end nodes of an edge are not encoded as connected nodes” must be triggered.				

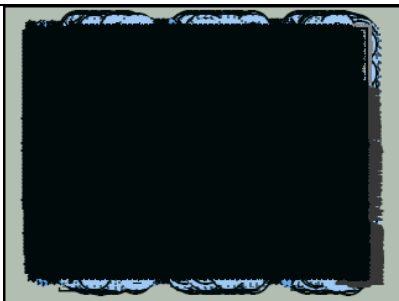
Secondary Errors	T0012: An additional error “Missing FSPT [Feature Record to Spatial Record pointer field]” must be triggered. T0028: An additional error “DSSI field record count incorrect” must be triggered.				
Dataset Name	AA500026	S-58 test No.	T0025b	Type	C
S-58 Description	For each connected node where the geometry is not part of an edge.				
Message	Connected node which is not part of an edge.				
Solution	Complete edge or make node isolated.	Conformity	Part 3 (5.1.4.4)		
Test Case No. 1	RAILWY (L) with beginning and ending nodes not part of the edge.				
Location	32°31'36.58"S 60°44'11.42"E	S57 Encoding	RAILWY		
Screen Capture					
Expected Test Results	T0025b: An error “Connected node which is not part of an edge” must be triggered.				
Secondary Errors	T0012: An additional error “Missing FSPT [Feature Record to Spatial Record pointer field]” must be triggered. T0021: An additional error “Vector record pointer field (VRPT) not referenced by an edge vector record” must be triggered. T0084a: An additional error “Isolated node marked as connected” must be triggered.				
Dataset Name	AA500026	S-58 test No.	T1523a	Type	C
S-58 Description	If the value of the ISDT (Issue date) subfield of the DSID (Data Set Identification) field is incorrect.				
Message	Issue date is incorrect.				
Solution	Remove additional fields from update record.	Conformity	2.2.2		
Test Case No. 1	Amend Issue date.				
Location	Dataset Description - DSID	S57 Encoding	ISDT	44-44-2014	

<p>Screen Capture</p>		
<p>Expected Test Results</p>	<p>T1523a: An error "Issue date is incorrect" must be triggered.</p>	
<p>Secondary Errors</p>	<p>T0027: An additional error "Subfield not formatted in accordance with S-57" must be triggered.</p>	

2.27. Test Dataset: AA400001

List of S-58 Recommended ENC Validation Checks covered in this section:

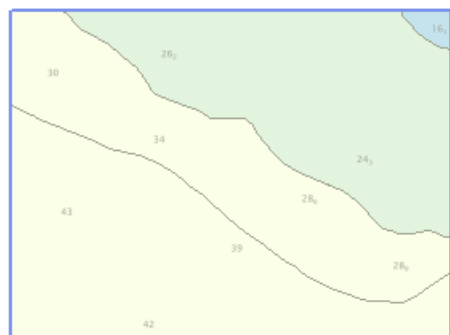
S-58 Test	Description			
1657	For each UWTROC object where the values of VALSOU, QUASOU, WATLEV, TECSOU AND SOUACC are not as defined in the table below (additional values may be encoded).			
	VALSOU	QUASOU	WATLEV	TECSOU SOUACC
	Unknown	2 or not present	3, 4 or 5	Not present
		2 or not present	Unknown	Not present
	< 0	1, 3, 4, 6, 8, 9 or not present	4	Not Null
		7	4	Not present
	0	1, 3, 4, 6, 8, 9 or not present	5	Not Null
		7	5	Not present
	> 0	1, 3, 4, 6, 8 or 9 or not present	3	Not Null
		7	3	Not present
502	If the cell file size is greater than 5 megabytes.			

Dataset Name	AA400001	S-58 test No.	T1657	Type	W
S-58 Description	For each UWTROC object where the values of VALSOU, QUASOU, WATLEV, TECSOU AND SOUACC are not as defined in the table below (additional values may be encoded).				
	VALSOU	QUASOU	WATLEV	TECSOU SOUACC	
	Unknown	2 or not present	3, 4 or 5	Not present	
		2 or not present	Unknown	Not present	
	< 0	1, 3, 4, 6, 8, 9 or not present	4	Not Null	
		7	4	Not present	
	0	1, 3, 4, 6, 8, 9 or not present	5	Not Null	
		7	5	Not present	
	> 0	1, 3, 4, 6, 8 or 9 or not present	3	Not Null	
		7	3	Not present	
Message	Illogical attribute values for UWTROC object.				
Solution	Amend to logical combination.		Conformity	6.1.2	
Test Case No. 1	UWTROC (27124) objects where the combination of attribute values do not correspond to the table above.				
Location	32°34'06.17"S 60°50'55.55"E	S57 Encoding	UWTROC (P)		
Screen Capture					
Expected Test Results	T1657: 35129 warnings “Illogical attribute values for UWTROC object” must be triggered.				
Secondary Errors	T2000: 24526 additional errors “Attribute value which is not allowed use on an object” must be triggered. T0507: 8712 additional errors “Mandatory attributes are not populated” must be triggered.				
Dataset Name	AA400001	S-58 test No.	T0502	Type	E
S-58 Description	If the cell file size is greater than 5 megabytes.				
Message	The cell is larger than 5Mb in size.				
Solution	Ensure that the cell is not larger than 5Mb.		Conformity	2.2	
Test Case No. 1	Cell file size is greater than 5Mb.				
Location	N/A	S57 Encoding			
Screen Capture	N/A				
Expected Test Results	T0502: An opening error “The cell is larger than 5Mb in size” must be triggered.				
Secondary Errors	None				

2.28. Test Dataset: AA400025

List of S-58 Recommended ENC Validation Checks covered in this section:

S-58 Test	Description
1792	If the cell OVERLAPS the 180° meridian.

Dataset Name	AA400025	S-58 test No.	T1792	Type	C
S-58 Description	If the cell OVERLAPS the 180° meridian.				
Message	Cell overlaps 180° meridian.				
Solution	Amend cell limits accordingly.		Conformity	2.1.8.2	
Test Case No. 1	Cell created at 180E.				
Location	32°40'36.12"S 180°00'00.00"E	S57 Encoding			
Screen Capture					
Expected Test Results	T1792: An error “Cell overlaps 180° meridian” must be triggered.				
Secondary Errors	T0501: An additional error “Cell is not rectangular” must be triggered. T0078: An additional error “Boundary of an area object crosses itself” must be triggered. T0001: 228 additional errors “Partially duplicated edges” must be triggered. T0077: An additional error “DEPCNT objects cross” must be triggered. T1768: 6 additional errors “SOUNDG object with depth less than or equal to the underlying value of DRVAL1” must be triggered. T0519b: 8 additional errors “Skin of the earth (TG1) objects overlap” must be triggered. T0011: 18 additional errors “Edge with USAG = 3 [exterior boundary truncated by the data limit] does not reference an M_COVR object” must be triggered. T0554: 6 additional errors “Edge of M_COVR coverage available referenced by more than one Group 1 object” must be triggered. T0549: 4 additional errors “DEPARE or DRGARE objects not covered by an M_QUAL object” must be triggered. T0548: An additional error “Cell not entirely covered by M_COVR objects” must be triggered. T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered. T1726: An additional error “Data coverage not completely covered by M_NSYS objects with a value for MARSYS” must be triggered. T0016: An additional error “Area outer boundary not encoded clockwise” must be triggered. T0017: An additional error “Area inner boundary not encoded counter-clockwise” must be triggered. T0080a: An additional error “Internal boundary WITHIN an internal boundary” must be triggered. T0019: An additional error “Edge coincides with the edge of data and USAG does not equal 3 {Exterior boundary truncated by the data limit}” must be triggered. T0042: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered.				