1. **Test Dataset: AA400003**

**S‐58 Recommended ENC Validation Checks covered in this section:**

|  |  |
| --- | --- |
| **S‐58 Check** | **Description** |
| 511 | For each feature object where any of the attributes DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS or CATQUA is Present. |
| 519a | If the combined coverage of all DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON and UNSARE feature objects is  Not equal to the combined coverage of all M\_COVR meta objects where CATCOV is Equal to 1 (coverage available). |
| 519b | For each DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE feature object of geometric primitive area that  OVERLAPS or is WITHIN another DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE of geometric primitive area. |
| 524 | If the DUNI subfield of the DSPM field is Not equal to 1 (metres). |
| 525 | If the PUNI subfield of the DSPM is Not equal to 1 (metres). |
| 548a | If the combined coverage of M\_COVR meta objects is Not equal to the cell extents. |
| 548b | For each M\_COVR meta object that OVERLAPS or is COVERED\_BY another M\_COVR object. |
| 554 | For each edge referenced by only one M\_COVR meta object where CATCOV is Equal to 1 (coverage available) AND is also shared by more than one Group 1 feature object. |
| 1504a | If the value of the VDAT subfield of the DSPM field is Null. |
| 1510a | If the value of the SDAT subfield of the DSPM field is Null. |
| 1513 | If the value of the HUNI subfield of the DSPM field is Not equal to 1 (metres). |

**Secondary Errors**

Critical – 26a, 27, 42, 504, 505, 545, 540a,

Error – 28, 501

Warnings – 19, 1771

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 511 | | | | | **Type** | | C |
| **S-58 Description** | | For each feature object where any of the attributes DUNITS, HUNITS, RECDAT, RECIND, SCAMAX, PUNITS or CATQUA is Present. | | | | | | | | | | | | | | | | | | | |
| **Message** | | Prohibited attributes have been encoded. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Remove prohibited attributes. | | | | | | | | | | | | | **Conformity** | | | 3.5.3 | | | |
| **Test Case No. 1** | | M\_UNIT with attribute values for PUNITS, DUNITS, HUNITS, RECDAT and RECIND encoded. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | | | **Feature** | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** |
| 32°23'48.86"S 61°00'54.24"E | | | | | M\_UNIT (A) | | PUNITS=1; DUNITS=1; HUNITS=1 ;  RECDAT=28.02.2017;  RECIND=AA,AA,digi | | | | | | FE-122 | | | AA 1883442262 00005 | | | | | - |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 511: 5 errors “Prohibited attributes have been encoded” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 504: An additional error “Prohibited objects exist within the dataset”. | | | | | | | | | | | | | | | | | | | |
| **Test Case No. 2** | | TS\_PAD with attribute value encoded for SCAMAX. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°24'00.29"S 61°01'00.53"E | | | TS\_PAD (P) | | | | SCAMAX = 30000 | | | | | | FE-61 | | | AA 2486852819 00064 | | | | | VI-08 | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 511:  “Prohibited attributes have been encoded” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |
| **Test Case No. 3** | | M\_QUAL with attribute values encoded for CATZOC and CATQUA | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°22'31.74"S 61°02'33.74"E | | | M\_QUAL (A) | | | | CATQUA = 6 | | | | | | FE-97 | | | AA 1596277063 00004 | | | | | - | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 511:  “Prohibited attributes have been encoded” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 519a | | | | | **Type** | | C |
| **S-58 Description** | | If the combined coverage of all DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON and UNSARE feature objects is Not equal to the combined coverage of all M\_COVR meta objects where CATCOV is Equal to 1 (coverage available). | | | | | | | | | | | | | | | | | | | |
| **Message** | | Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR = 1). | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Amend to ensure Group1 coverage and M\_COVR with CATCOV = 1 are equal. | | | | | | | | | | | | | **Conformity** | | | 3.10.1 | | | |
| **Test Case No. 1** | | Gap in group 1 coverage. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°22'42.95"S 61°02'08.54"E | | | M\_COVR | | | | CATCOV = 1 | | | | | | FE-93 | | | AA 0657245416 00002 | | | | | - | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 519a: An error “Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR = 1)” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 42: An additional error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered.  43: An additional error “DEPCNT does not coincide with two Group 1 objects” must be triggered. | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 519b | | | | | **Type** | | C |
| **S-58 Description** | | For each DEPARE, DRGARE, FLODOC, HULKES, LNDARE PONTON or UNSARE feature object of geometric primitive area that OVERLAPS or is WITHIN another DEPARE, DRGARE, FLODOC, HULKES, LNDARE, PONTON or UNSARE of geometric primitive area. | | | | | | | | | | | | | | | | | | | |
| **Message** | | Skin of the earth (Group1) objects overlap. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Ensure Group1 objects do not overlap. | | | | | | | | | | | | | **Conformity** | | | 3.10.1 | | | |
| **Test Case No. 1** | | Depth area (DEPARE AA-0346412749 FE-07) overlaps on other group 1 features. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°23'49.05"S 61°00'54.23"E | | | LNDARE | | | | - | | | | | | FE-82 | | | AA 2385948493 00085 | | | | | - | |
| 32°23'40.69"S 61°00'53.42"E | | | UNSARE | | | | - | | | | | | FE-84 | | | AA 2967393102 00087 | | | | | - | |
| 32°23'57.62"S 61°00'57.97"E | | | PONTON | | | | - | | | | | | FE-85 | | | AA 3859690026 00088 | | | | | - | |
| 32°23'37.51"S 61°00'54.71"E | | | HULKES | | | | - | | | | | | FE-86 | | | AA 0280423607 00089 | | | | | - | |
| 32°23'25.09"S 61°00'53.75"E | | | FLODOC | | | | - | | | | | | FE-88 | | | AA 3284737411 00091 | | | | | - | |
| 32°23'40.27"S 61°00'36.34"E | | | DRGARE | | | | - | | | | | | FE-90 | | | AA 1554182568 00093 | | | | | - | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 519b: error “Skin of the earth (Group1) objects overlap” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 42: additional error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Test Case No. 2** | | Floating dock (FLODOC AA-3345335726 FE-94) overlaps on other group 1 features. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | | **Feature** | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** |
| 32°20'09.36"S 61°00'08.59"E | | | | DEPARE | | | - | | | | | | FE-96 | | | AA 2628503926 00095 | | | | |  |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 519b: error “Skin of the earth (Group1) objects overlap” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 42: additional error “Group 1 coverage is not correct, a hole or an overlap exists” must be triggered. | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 524 | | | | | **Type** | | C |
| **S-58 Description** | | If the DUNI subfield of the DSPM field is Not equal to 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Message** | | DUNI does not equal 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Set the DUNI subfield to 1 (metres). | | | | | | | | | | | | | **Conformity** | | | 4.4 | | | |
| **Test Case No. 1** | | Depth units has been assigned as “feet”. | | | | | | | | | | | | | | | | | | | |
| **Record** | | | | | | | | | **Subfield** | | | | | | | | | | | | |
| DSPM - Data set Parameter field | | | | | | | | | DUNI - Units of depth measurement | | | | | | | | | | | | |
| **ASCII** | | 0001: <2>  DSPM: <20><2><2><0><0><45000><3><2><4><1><10000000><10>! | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 524: An error “DUNI does not equal 1 (metres)” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 525 | | | | | **Type** | | C |
| **S-58 Description** | | If the PUNI subfield of the DSPM is Not equal to 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Message** | | PUNI does not equal 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Set the PUNI subfield to 1 (metres). | | | | | | | | | | | | | **Conformity** | | | 4.4 | | | |
| **Test Case No. 1** | | Positional Accuracy units has been assigned as “feet”. | | | | | | | | | | | | | | | | | | | |
| **Record** | | | | | | | | | **Subfield** | | | | | | | | | | | | |
| DSPM - Data set Parameter field | | | | | | | | | PUNI – Units of positional accuracy | | | | | | | | | | | | |
| **ASCII** | | 0001: <2>  DSPM: <20><2><2><0><0><45000<3><2><4><1><10000000><10>! | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 525: An error “PUNI does not equal 1 (metres)” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Errors** | | None | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | AA400003 | | | | | **S‐58 Check** | | | | | 548a | | | **Type** | | | | | | C | | |
| **S-58 Description** | | If the combined coverage of M\_COVR meta objects is Not equal to the cell extents. | | | | | | | | | | | | | | | | | | | |
| **Message** | | Cell not entirely covered by M\_COVR objects. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Edit M\_COVR coverage to match cell extents. | | | | | | | | | | | | | **Conformity** | | | 3.4 | | | |
| **Test Case No. 1** | | M\_COVR objects with CATCOV=1 and CATCOV=2 overlapping each other. Also the extents of the dataset is greater than the combined coverage of M\_COVR (CATCOV = 1 + CATCOV = 2). | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | **Attributes** | | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°22'30.69"S 61°02'33.96"E | | | M\_COVR (A) | | | | CATCOV=1 | | | | | | FE-93 | | | AA 0657245416 00002 | | | | | - | |
| 32°20'40.52"S 61°04'48.78"E | | | M\_COVR (A) | | | | CATCOV=2 | | | | | | FE-91 | | | AA 3788377823 00001 | | | | | - | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 548a: An error “Cell not entirely covered by M\_COVR objects” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 519a: Error “Skin of the earth (Group1) objects do not cover the data coverage (M\_COVR = 1)” must be triggered.  42: An additional error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered. | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Dataset Name** | AA400003 | **S‐58 Check** | 548b | **Type** | C | | | | | | | | | | | | | | | | | | | | | | |
| |  |  | | --- | --- | | **S-58 Description** | For each M\_COVR meta object that OVERLAPS or is COVERED\_BY another M\_COVR object. | | | | | | | | | | | | | | | | | | | | | | |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **Message** | Cell contains overlapping M\_COVR objects. | | | | | | | | | | **Solution** | Amend M\_COVR objects to remove overlap. | | | | **Conformity** | | 3.4 | | | | **Test Case No. 1** | M\_COVR objects with CATCOV=1 overlap each other. | | | | | | | | | **Location** | | **Feature** | **Attributes** | **FRID** | | **FOID** | | **VRID** | | | 32°21'40.00"S 61°04'53.18"E | | M\_COVR (A) | CATCOV=1 | FE-96 | | AA 0000030501 00001 | | - | | |  | | M\_COVR (A) | CATCOV=1 | FE-93 | | AA 0657245416 00002 | | - | | | | | | | | | | | | | | | | | | | | | | | |
| |  |  | | --- | --- | | **Screen Capture** |  | | | | | | | | | | | | | | | | | | | | | | |
| |  |  | | --- | --- | | **Expected Test Results** | 548b: An error “Cell contains overlapping M\_COVR objects” must be triggered. | | **Secondary Critical Errors** | None | | | | | | | | | | | | | | | | | | | | | | |
| |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **Test Case No. 2** | M\_COVR object with CATCOV=2 overlaps M\_COVR object with CATCOV = 1 each other. | | | | | | | **Location** | | **Feature** | **Attributes** | **FRID** | **FOID** | **VRID** | | | 32°22'30.69"S 61°02'33.96"E | | M\_COVR (A) | CATCOV=1 | FE-91 | AA 3788377823 00001 | - | | | 32°20'40.52"S 61°04'48.78"E | | M\_COVR (A) | CATCOV=2 | FE-93 | AA 0657245416 00002 | - | | | **Screen Capture** |  | | | | | | | **Expected Test Results** | 548b: An error “Cell contains overlapping M\_COVR objects” must be triggered. | | | | | | | **Secondary Critical Errors** |  | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 554 | | | | | **Type** | | C |
| **S-58 Description** | | For each edge referenced by only one M\_COVR meta object where CATCOV is Equal to 1 (coverage available) AND is also shared by more than one Group 1 feature object. | | | | | | | | | | | | | | | | | | | |
| **Message** | | Edge of M\_COVR (coverage available) referenced by more than one Group 1 object. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Ensure edges on the extent of data coverage only reference one Group 1 object. | | | | | | | | | | | | | **Conformity** | | | 3.10.1 | | | |
| **Test Case No. 1** | | FLODOC (A) overlapping with DEPARE feature. | | | | | | | | | | | | | | | | | | | |
| **Location** | | | **Feature** | | | | | **Attributes** | | | | | **FRID** | | | **FOID** | | | | | **VRID** | |
| 32°20'09.20"S 61°00'08.95"E | | | FLODOC (A) | | | | | - | | | | | FE-94 | | | AA 3345335726 00095 | | | | | FE-69 | |
| 32°20'09.20"S 61°00'08.95"E | | | DEPARE (A) | | | | | - | | | | | FE-96 | | | AA 2628503926 00096 | | | | | - | |
| **Screen Capture** | |  | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 554: error “Edge of M\_COVR (coverage available) referenced by more than one Group 1 object.” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | 519b: error “Skin of the earth (Group1) objects overlap” must be triggered.  42: error “GROUP 1 is not correct, a hole or an overlap exists” must be triggered. | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 1504a | | | | | **Type** | | C |
| **S-58 Description** | | If the value of the VDAT subfield of the DSPM field is Null. | | | | | | | | | | | | | | | | | | | |
| **Message** | | VDAT is not populated. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Populate the VDAT subfield with the vertical datum of the cell. | | | | | | | | | | | | | **Conformity** | | | 2.1.2 | | | |
| **Test Case No. 1** | | Vertical datum (VDAT) has been assigned a null value. | | | | | | | | | | | | | | | | | | | |
| **Record** | | | | | | | | | | **Subfield** | | | | | | | | | | | |
| DSPM - Data set Parameter field | | | | | | | | | | VDAT – Vertical datum | | | | | | | | | | | |
| **ASCII** | | 0001: <2>  DSPM: <20><2><2><0><0><45000<3><2><4><1><10000000><10>! | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 1504a: error “Vertical Datum subfield (VDAT) not populated within DPSM field” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 1510a | | | | | **Type** | | C |
| **S-58 Description** | | If the value of the SDAT subfield of the DSPM field is Null. | | | | | | | | | | | | | | | | | | | |
| **Message** | | SDAT is not populated. | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Populate the SDAT subfield with the sounding datum of the cell. | | | | | | | | | | | | | **Conformity** | | | 2.1.3 | | | |
| **Test Case No. 1** | | Sounding datum (SDAT) has been assigned a null value. | | | | | | | | | | | | | | | | | | | |
| **Record** | | | | | | | | | | **Subfield** | | | | | | | | | | | |
| DSPM - Data set Parameter field | | | | | | | | | | SDAT – Sounding datum | | | | | | | | | | | |
| **ASCII** | | 0001: <2>  DSPM: <20><2><2><0><0><45000<3><2><4><1><10000000><10>! | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 1510a: An error “SDAT (Sounding Datum subfield) is not populated” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | |
| **Dataset Name** | | AA400003 | | | | | | | | | | **S‐58 Check** | | 1513 | | | | | **Type** | | C |
| **S-58 Description** | | If the value of the HUNI subfield of the DSPM field is Not equal to 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Message** | | HUNI subfield is not equal to 1 (metres). | | | | | | | | | | | | | | | | | | | |
| **Solution** | | Set value of HUNI to 1 (metres). | | | | | | | | | | | | | **Conformity** | | | 2.1.4 | | | |
| **Test Case No. 1** | | Height measurement units (HUNITS) has been assigned as “feet”. | | | | | | | | | | | | | | | | | | | |
| **Location** | | DSPM Parameters | | | | | | | | | | **S57 Encoding** | | - | | |  | | | | |
| **Record** | | | | | | | | | | **Subfield** | | | | | | | | | | | |
| DSPM - Data set Parameter field | | | | | | | | | | HUNI – Units of height measurement | | | | | | | | | | | |
| **ASCII** | | 0001: <2>  DSPM: <20><2><2><0><0><45000<3><2><4><1><10000000><10>! | | | | | | | | | | | | | | | | | | | |
| **Expected Test Results** | | 1513: An error “Units of Height measurement subfield is not set to (1) [metres]” must be triggered. | | | | | | | | | | | | | | | | | | | |
| **Secondary Critical Errors** | | None | | | | | | | | | | | | | | | | | | | |