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# Surface Salt Concentration

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Soil health is primarily influenced by human management, which is not captured in soil survey data at this time. This interpretation provides information on inherent soil properties that influence our ability to build healthy soils through management.

The weathering of minerals in soils can produce salts of sodium, calcium, potassium, and magnesium. Also, some salts can be added to the surface by aeolian deposition. Excess salts can concentrate in soils where precipitation is sufficient to move salts within the soil but insufficient to move the salts out of the soil. Percolating precipitation moves salts downward from the generally convex recharge areas of the landscape to the generally concave discharge areas. Net water movement can be upward in these areas due to evapotranspiration, or water movement can be more or less horizontal due to restrictive layers or differences in water transmission rates. Excessive salt concentration in the surface of soil is detrimental to the germination and growth of crops due to the osmotic effects of the ions.

Several soil properties and site properties influence the movement and distribution of salts on the landscape. Excess salts must exist in the soil in order to have movement and surface concentration. The concentration of excess salts in soils is estimated by measuring the electrical conductivity of the soil. The soil must exist in a non-leaching environment. In areas where salt accumulates in the soil, precipitation does not exceed evapotranspiration; thus, excess salts do not move vertically or laterally through the soil profile and then into groundwater or surface waters. The soil surface and subsurface must generally concentrate water flow. Research has shown that in regions where rainfall is limited, the concave parts of the landscape also concentrate subsurface water flow as well as surface flow. Salts move through soil when water flows. Most water movement happens when the soil is saturated; thus, the depth to saturation and its temporal persistence influence whether or not salts remain deep in the profile or are carried to the surface. If the water table remains deep, the salts accumulate deeper in the profile. If the water table is close enough to the surface that capillary rise and evapotranspiration can bring water to the soil surface, the salts accumulate at the surface.

The degree to which each of the listed soil properties promotes accumulation of surface salts is rated. The rating of the attribute that contributes the least to surface salinization is taken as the overall rating.

The ratings are both verbal and numerical. Numerical ratings indicate the contributions of the individual soil properties. The ratings are shown in decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil has the most severe propensity for surface salinization (1.00) and the point at which the soil has no propensity for surface salinization (0.00).

Rating class terms indicate the rate at which the soils are likely to accumulate salts considering all the soil features that are examined for this rating. “High surface salinization risk or already saline” indicates that the soil has features that are very favorable for the accumulation of salts at the surface or is already saline. These soils are already limited by excess surface salts. “Surface salinization risk” indicates that the soil has features that are somewhat favorable for surface salinization. Careful management is needed to avoid damage from salinity. “Low surface salinization risk” indicates that the soil has one or more features that are unfavorable for salinization. These soils exist in climates where salinization does not occur or on landscape positions where salts are unlikely to accumulate.

The map unit components listed for each map unit in the accompanying “Summary by Map Unit” table in Web Soil Survey or the “Aggregation Report” in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the extent of each map unit that has the specified rating.

Other components with different ratings can be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

### Criteria Table

| **Soil and site properties** | **Low** | **Moderate** | **High** | **Feature** |
| --- | --- | --- | --- | --- |
| Depth to water table (cm) | >100 | 20-100 | <20 | Salts in the near-surface water are pulled to the surface. |
| Water table persistence (months) | 0 | 0-4 | >4 | Months per year the water table is near the surface. |
| Non-leaching climate (map-pet) (mm/yr) | >10 | 10-(-200) | <-200 | Low excess moisture does not leach salts. |
| Presence of salts (EC 0-150 cm) (dS/m) | 0 | 0-4 | >4 | If salts are available, accumulation is possibility. |
| Water gathering surface OR (Maximum of inputs) | convex | linear | concave | Concave areas accumulate surface and subsurface materials. |
| Presence of salts (EC 0-150 cm) (dS/m) | 0 | 0-4 | >4 | Soil is already saline. |

## Soil Script Breakdown

### Create AoI Table

CREATE TABLE #AoiTable

( aoiid INT IDENTITY (1,1),

landunit CHAR(20),

aoigeom GEOMETRY);

* Create AOI table with polygon geometry. Coordinate system must be WGS1984 (EPSG 4326).

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387, -102.12327175652177 45.944703605814198, -102.12335160658608 45.959173206572416)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld3', @aoiGeomFixed);

SELECT @aoiGeom = GEOMETRY::STGeomFromText('MULTIPOLYGON (((-102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.944703605814198, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383)))', 4326);

SELECT @aoiGeomFixed = @aoiGeom.MakeValid().STUnion(@aoiGeom.STStartPoint());

INSERT INTO #AoiTable ( landunit, aoigeom )

VALUES ('T9981 Fld4', @aoiGeomFixed);

#### Create summary acres for each landunit

CREATE TABLE #AoiAcres

( aoiid INT,

landunit CHAR(20),

landunit\_acres FLOAT

);

INSERT INTO #AoiAcres (aoiid, landunit, landunit\_acres )

SELECT aoiid, landunit,

SUM( ROUND( ( ( GEOGRAPHY::STGeomFromWKB(aoigeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) ) AS landunit\_acres

FROM #AoiTable

GROUP BY aoiid, landunit;

| **aoiid** | **landunit** | **landunit\_acres** |
| --- | --- | --- |
| 1 | T9981 Fld3 | 328.952 |
| 2 | T9981 Fld4 | 318.722 |

#### Populate intersected soil polygon table with geometry

-- Create intersected soil polygon table with geometry

CREATE TABLE #AoiSoils

( polyid INT IDENTITY (1,1),

aoiid INT,

landunit CHAR(20),

mukey INT,

soilgeom GEOMETRY

);

INSERT INTO #AoiSoils (aoiid, landunit, mukey, soilgeom)

SELECT A.aoiid, A.landunit, M.mukey, M.mupolygongeo.STIntersection(A.aoigeom ) AS soilgeom

FROM mupolygon M, #AoiTable A

WHERE mupolygongeo.STIntersects(A.aoigeom) = 1;

#### Populate soil geometry with landunit attribute

-- Soil geometry with landunits

CREATE TABLE #AoiSoils2

( aoiid INT,

polyid INT,

landunit CHAR(20),

mukey INT,

poly\_acres FLOAT,

soilgeog GEOGRAPHY

);

-- Populate Soil geometry with landunit attribute

INSERT INTO #AoiSoils2

SELECT aoiid, polyid, landunit, mukey, ROUND((( GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ).STArea() ) / 4046.8564224 ), 3 ) AS poly\_acres, GEOGRAPHY::STGeomFromWKB(soilgeom.STAsBinary(), 4326 ) AS soilgeog

FROM #AoiSoils;

### Create Table to Store Survey Area Datestamps (sacatalog.saverest)

CREATE TABLE #DateStamps

(landunit CHAR(20),

datestamp VARCHAR(32));

| **landunit** | **datestamp** |
| --- | --- |
| T9981 Fld3 | ND001 2018-09-12 19:21:50 |
| T9981 Fld3 | SD105 2018-09-12 23:49:29 |
| T9981 Fld4 | ND001 2018-09-12 19:21:50 |

INSERT INTO #DateStamps

SELECT DISTINCT AM.landunit, ([SC].[areasymbol] + ' ' + CONVERT(VARCHAR(32),[SC].[saverest],120) ) AS datestamp

FROM #M4 AM

INNER JOIN mapunit Mu ON AM.mukey = Mu.mukey

INNER JOIN legend LG ON Mu.lkey = LG.lkey

INNER JOIN sacatalog SC ON Lg.areasymbol = SC.areasymbol;

* Get survey area dates for all soil map units involved.

### Create Table to Store Landunit Metadata (survey area and saverest) Which Comes From #DateStamps

CREATE TABLE #LandunitMetadata

(landunit CHAR(20),

soils\_metadata VARCHAR(150)

);

INSERT INTO #LandunitMetadata

SELECT DISTINCT

landunit,

STUFF((SELECT ' | ' + CAST([datestamp] AS VARCHAR(30))

FROM #DateStamps dt2

WHERE dt1.landunit = dt2.landunit

FOR XML PATH ('') ), 1, 2, '') AS soils\_metadata

FROM #DateStamps dt1;

* Populate landunit soils-metadata.

| **landunit** | **soils\_metadata** |
| --- | --- |
| T9981 Fld3 | ND001 2018-09-12 19:21:50 SD105 2018-09-12 23:49:29 |
| T9981 Fld4 | ND001 2018-09-12 19:21:50 |

### Populate #SDV with Interp Metadata

CREATE TABLE #SDV

(attributekey BIGINT,

attributename CHAR(60),

attributetablename CHAR(30),

attributecolumnname CHAR(30),

attributelogicaldatatype CHAR(20),

attributefieldsize SMALLINT,

attributeprecision TINYINT,

attributedescription NVARCHAR(MAX),

attributeuom NVARCHAR(60),

attributeuomabbrev NVARCHAR(30),

attributetype CHAR(20),

nasisrulename CHAR(60),

ruledesign NVARCHAR(60),

notratedphrase CHAR(15),

mapunitlevelattribflag TINYINT,

complevelattribflag TINYINT,

cmonthlevelattribflag TINYINT,

horzlevelattribflag TINYINT,

tiebreakdomainname CHAR(40),

tiebreakruleoptionflag TINYINT,

tiebreaklowlabel CHAR(20),

tiebreakhighlabel CHAR(20),

tiebreakrule SMALLINT,

resultcolumnname CHAR(10),

sqlwhereclause CHAR(255),

primaryconcolname CHAR(30),

pcclogicaldatatype CHAR(20),

primaryconstraintlabel CHAR(30),

secondaryconcolname CHAR(30),

scclogicaldatatype CHAR(20),

secondaryconstraintlabel CHAR(30),

dqmodeoptionflag TINYINT,

depthqualifiermode CHAR(20),

layerdepthtotop FLOAT,

layerdepthtobottom FLOAT,

layerdepthuom CHAR(20),

monthrangeoptionflag TINYINT,

beginningmonth CHAR(9),

endingmonth CHAR(9),

horzaggmeth CHAR(30),

interpnullsaszerooptionflag TINYINT,

interpnullsaszeroflag TINYINT,

nullratingreplacementvalue CHAR(254),

basicmodeflag TINYINT,

maplegendkey SMALLINT,

maplegendclasses TINYINT,

maplegendxml XML,

nasissiteid BIGINT,

wlupdated DATETIME,

algorithmname CHAR(50),

componentpercentcutoff TINYINT,

readytodistribute TINYINT,

effectivelogicaldatatype CHAR(20),

rulekey CHAR(30)

);

INSERT INTO #SDV (attributename, nasisrulename, rulekey, ruledesign, notratedphrase, resultcolumnname, maplegendxml, attributedescription)

SELECT sdv.attributename, sdv.nasisrulename, md.rulekey, md.ruledesign, sdv.notratedphrase, sdv.resultcolumnname, sdv.maplegendxml, sdv.attributedescription

FROM sdvattribute sdv

LEFT OUTER JOIN distinterpmd md ON sdv.nasisrulename = md.rulename

WHERE sdv.attributename IN ('Agricultural Organic Soil Subsidence', 'Soil Susceptibility to Compaction', 'Organic Matter Depletion', 'Surface Salt Concentration', 'Hydric Rating by Map Unit', 'Suitability for Aerobic Soil Organisms', 'Ponding Frequency Class','Flooding Frequency Class',

'Available Water Storage','Depth to Water Table', 'Drainage Class', 'Farmland Classification')

GROUP BY md.rulekey, sdv.attributename, sdv.nasisrulename, sdv.resultcolumnname, md.ruledesign, sdv.notratedphrase, sdv.maplegendxml, sdv.attributedescription;

* Begin populating static tables. These are for the base soils data and metadata. No interpretation data yet.
* Create a table containing necessary interpretation data.
* Please note that if we instead get ruledesign from sdvattribute, those values change to integer as in 1:limitation, 2:suitability.

#### Populate soil map unit acres, aggregated by mukey (merges polygons together)

-- Soil map unit acres, aggregated by mukey (merges polygons together)

CREATE TABLE #M2

( aoiid INT,

landunit CHAR(20),

mukey INT,

mapunit\_acres FLOAT

);

INSERT INTO #M2

SELECT DISTINCT M1.aoiid, M1.landunit, M1.mukey,

ROUND (SUM (M1.poly\_acres) OVER(PARTITION BY M1.landunit, M1.mukey), 3) AS mapunit\_acres

FROM #AoiSoils2 AS M1

GROUP BY M1.aoiid, M1.landunit, M1.mukey, M1.poly\_acres;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** |
| --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 |
| 1 | T9981 Fld3 | 354648 | 0.287 |
| 1 | T9981 Fld3 | 2494708 | 1.729 |
| 1 | T9981 Fld3 | 2525720 | 56.699 |
| 1 | T9981 Fld3 | 2525732 | 1.35 |
| 1 | T9981 Fld3 | 2525733 | 0.129 |
| 1 | T9981 Fld3 | 2525739 | 28.479 |
| 1 | T9981 Fld3 | 2525745 | 4.983 |
| 1 | T9981 Fld3 | 2525746 | 16.106 |
| 1 | T9981 Fld3 | 2525754 | 12.638 |
| 1 | T9981 Fld3 | 2525764 | 17.691 |
| 1 | T9981 Fld3 | 2525766 | 0.032 |
| 1 | T9981 Fld3 | 2525769 | 181.356 |
| 1 | T9981 Fld3 | 2755648 | 2.449 |
| 1 | T9981 Fld3 | 2755654 | 4.599 |
| 2 | T9981 Fld4 | 2525720 | 8.623 |
| 2 | T9981 Fld4 | 2525724 | 0.458 |
| 2 | T9981 Fld4 | 2525730 | 31.514 |
| 2 | T9981 Fld4 | 2525745 | 62.205 |
| 2 | T9981 Fld4 | 2525746 | 63.55 |
| 2 | T9981 Fld4 | 2525754 | 23.138 |
| 2 | T9981 Fld4 | 2525767 | 3.86 |
| 2 | T9981 Fld4 | 2525769 | 103.909 |
| 2 | T9981 Fld4 | 2755639 | 0.443 |
| 2 | T9981 Fld4 | 2755643 | 9.641 |
| 2 | T9981 Fld4 | 2755648 | 11.382 |

| **aoiid** | **landunit** | **aoigeom** |
| --- | --- | --- |
| 1 | T9981 Fld3 | POLYGON ((-102.13386921506947 45.944643788188387, -102.12327175652177 45.9447036058142, -102.12335160658608 45.959173206572416, -102.13402890980223 45.959218442561564, -102.13386921506947 45.944643788188387)) |
| 2 | T9981 Fld4 | POLYGON ((-102.12327175652177 45.9447036058142, -102.1128892282776 45.944710506326032, -102.1130336443976 45.959162795100383, -102.12335160658608 45.959173206572416, -102.12327175652177 45.9447036058142)) |

### Create Table to Store Survey Area Datestamps (sacatalog.saverest)

CREATE TABLE #DateStamps

(landunit CHAR(20),

datestamp VARCHAR(32));

SELECT @attributeName = 'Surface Salt Concentration';

SELECT @minPct = 10;

SELECT @minAcres = 10;

* Defines the soil interpretation.
* Sets the minimum cutoff percent for a resource concern at 10 percent or 10 acres for a given landunit.

### XML Parsing

SELECT @rating1 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[1]', 'VARCHAR(100)');

SELECT @rating2 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[2]', 'VARCHAR(100)');

SELECT @rating3 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[3]', 'VARCHAR(100)');

SELECT @rating4 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[4]', 'VARCHAR(100)');

SELECT @rating5 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[5]', 'VARCHAR(100)');

SELECT @rating6 = (SELECT maplegendxml FROM #SDV WHERE attributename = @attributeName).value('(/Map\_Legend/Legend\_Elements/Labels/@value)[6]', 'VARCHAR(100)');

* Get ordered set of interphrc values from sdvattribute.maplegendxml. This is assumed to begin with the ”worst” rating. Need to double-check this for all interpretations.

### Set Interp Rulekey and Ruledesign as a Variable To Be Used in Cointerp Query

SELECT @ruleKey = (SELECT rulekey FROM #SDV WHERE attributename = @attributeName);

SELECT @ruleDesign = (SELECT ruledesign FROM #SDV WHERE attributename = @attributeName)

SELECT @notRatedPhrase = (SELECT notratedphrase FROM #SDV WHERE attributename = @attributeName);

### Add Not Rated Phrase to @rating Variables

IF @notRatedPhrase IS NOT NULL

IF @rating1 IS NULL (SELECT @rating1 = @notRatedPhrase)

ELSE

IF @rating2 IS NULL (SELECT @rating2 = @notRatedPhrase)

ELSE

IF @rating3 IS NULL (SELECT @rating3 = @notRatedPhrase)

ELSE

IF @rating4 IS NULL (SELECT @rating4 = @notRatedPhrase)

ELSE

IF @rating5 IS NULL (SELECT @rating5 = @notRatedPhrase)

ELSE

IF @rating6 IS NULL (SELECT @rating6 = @notRatedPhrase)

### Append the Rating Classes for This Interp to the #RatingClasses Table

INSERT INTO #RatingClasses (attributename, ruledesign, rating1, rating2, rating3, rating4, rating5, rating6)

SELECT @attributeName AS attributename, @ruleDesign AS ruledesign, @rating1 AS rating1, @rating2 AS rating2, @rating3 AS rating3, @rating4 AS rating4, @rating5 AS rating5, @rating6 AS rating6;

attributename| ruledesign| rating1| rating2| rating3 |rating4| rating5 |rating6 Surface Salt Concentration | limitation | High surface salinization risk or already saline | Surface salinization risk| Low surface salinization risk | Not rated | NULL| NULL

### Populate the #RatingDomain Table with a Unique Rating\_key for This Interp

SELECT @ratingKey = RTRIM(@attributeName) + ':1'

IF NOT @rating1 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating1, 1)

SELECT @ratingKey = RTRIM(@attributeName) + ':2'

IF NOT @rating2 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating2, 2)

SELECT @ratingKey = RTRIM(@attributeName) + ':3'

IF NOT @rating3 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating3, 3)

SELECT @ratingKey = RTRIM(@attributeName) + ':4'

IF NOT @rating4 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating4, 4)

SELECT @ratingKey = RTRIM(@attributeName) + ':5'

IF NOT @rating5 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating5, 5)

SELECT @ratingKey = RTRIM(@attributeName) + ':6'

IF NOT @rating6 IS NULL INSERT INTO #RatingDomain VALUES( @ratingKey, @attributename, @rating6, 6)

| **id** | **rating\_key** | **attributename** | **rating** | **rating\_num** |
| --- | --- | --- | --- | --- |
| 1 | Surface Salt Concentration:1 | Surface Salt Concentration | High surface salinization risk or already saline | 1 |
| 2 | Surface Salt Concentration:2 | Surface Salt Concentration | Surface salinization risk | 2 |
| 3 | Surface Salt Concentration:3 | Surface Salt Concentration | Low surface salinization risk | 3 |
| 4 | Surface Salt Concentration:4 | Surface Salt Concentration | Not rated | 4 |

### Populate Component Level Ratings Uing the Currently Set Soil Interpretation

TRUNCATE TABLE #M5

INSERT INTO #M5

SELECT M4.aoiid, M4.landunit, M4.mukey, mapunit\_acres, M4.cokey, M4.compname, M4.comppct\_r, TP.interphrc AS rating, SUM (M4.comppct\_r) OVER(PARTITION BY M4.landunit, M4.mukey) AS mu\_pct\_sum

FROM #M4 AS M4

LEFT OUTER JOIN cointerp AS TP ON M4.cokey = TP.cokey AND rulekey = @ruleKey

WHERE M4.majcompflag = 'yes';

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **mu\_pct\_sum** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Surface salinization risk | 90 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Low surface salinization risk | 90 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Low surface salinization risk | 85 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Low surface salinization risk | 85 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Low surface salinization risk | 81 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Low surface salinization risk | 81 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Low surface salinization risk | 72 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Low surface salinization risk | 72 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Low surface salinization risk | 75 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Low surface salinization risk | 75 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Low surface salinization risk | 78 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Low surface salinization risk | 78 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | High surface salinization risk or already saline | 55 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Low surface salinization risk | 85 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Low surface salinization risk | 85 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Low surface salinization risk | 80 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Low surface salinization risk | 80 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Low surface salinization risk | 88 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 |

### Populate Component Level Ratings with Adjusted Component Percent to Account for the Un-used Minor Components

TRUNCATE TABLE #M6

INSERT INTO #M6

SELECT aoiid, landunit, mukey, mapunit\_acres, cokey, compname, comppct\_r, rating, mu\_pct\_sum, (1.0 \* comppct\_r / mu\_pct\_sum) AS adj\_comp\_pct

FROM #M5;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **mu\_pct\_sum** | **adj\_comp\_pct** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Surface salinization risk | 90 | 0.277777778 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Low surface salinization risk | 90 | 0.722222222 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Low surface salinization risk | 85 | 0.294117647 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Low surface salinization risk | 85 | 0.705882353 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Low surface salinization risk | 81 | 0.604938272 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Low surface salinization risk | 81 | 0.395061728 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 | 0.375 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 | 0.625 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Low surface salinization risk | 72 | 0.763888889 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Low surface salinization risk | 72 | 0.236111111 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Low surface salinization risk | 75 | 0.666666667 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Low surface salinization risk | 75 | 0.333333333 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Low surface salinization risk | 78 | 0.256410256 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Low surface salinization risk | 78 | 0.743589744 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 | 1 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 | 1 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 | 1 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | High surface salinization risk or already saline | 55 | 1 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 | 1 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 | 0.545454545 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 | 0.454545455 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 | 0.743589744 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 | 0.256410256 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Low surface salinization risk | 85 | 0.705882353 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Low surface salinization risk | 85 | 0.294117647 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 | 0.375 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 | 0.625 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Low surface salinization risk | 85 | 0.352941176 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Low surface salinization risk | 85 | 0.235294118 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Low surface salinization risk | 85 | 0.411764706 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Low surface salinization risk | 85 | 0.8 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Low surface salinization risk | 85 | 0.2 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 | 1 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 | 1 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 | 1 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 | 1 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 | 0.545454545 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 | 0.454545455 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Low surface salinization risk | 80 | 0.775 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Low surface salinization risk | 80 | 0.225 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Low surface salinization risk | 88 | 0.340909091 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Low surface salinization risk | 88 | 0.454545455 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Low surface salinization risk | 88 | 0.204545455 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 | 0.743589744 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 | 0.256410256 |

### Populate Component Acres by Multiplying Map Unit Acres with Adjusted Component Percent

TRUNCATE TABLE #M8

INSERT INTO #M8

SELECT aoiid, landunit, mukey, mapunit\_acres, cokey, compname, comppct\_r, rating, MU\_pct\_sum, adj\_comp\_pct, ROUND ( (adj\_comp\_pct \* mapunit\_acres), 4) AS co\_acres

FROM #M6;

| **aoiid** | **landunit** | **mukey** | **mapunit\_acres** | **cokey** | **compname** | **comppct\_r** | **rating** | **MU\_pct\_sum** | **adj\_comp\_pct** | **co\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464494 | Daglum | 25 | Surface salinization risk | 90 | 0.277777778 | 0.1183 |
| 1 | T9981 Fld3 | 354627 | 0.426 | 16464495 | Farnuf | 65 | Low surface salinization risk | 90 | 0.722222222 | 0.3077 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464607 | Amor | 25 | Low surface salinization risk | 85 | 0.294117647 | 0.0844 |
| 1 | T9981 Fld3 | 354648 | 0.287 | 16464612 | Reeder | 60 | Low surface salinization risk | 85 | 0.705882353 | 0.2026 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663930 | Amor | 49 | Low surface salinization risk | 81 | 0.604938272 | 1.0459 |
| 1 | T9981 Fld3 | 2494708 | 1.729 | 16663931 | Cabba | 32 | Low surface salinization risk | 81 | 0.395061728 | 0.6831 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 | 0.375 | 21.2621 |
| 1 | T9981 Fld3 | 2525720 | 56.699 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 | 0.625 | 35.4369 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663796 | Ekalaka | 55 | Low surface salinization risk | 72 | 0.763888889 | 1.0312 |
| 1 | T9981 Fld3 | 2525732 | 1.35 | 16663797 | Yegen | 17 | Low surface salinization risk | 72 | 0.236111111 | 0.3187 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663951 | Vebar | 50 | Low surface salinization risk | 75 | 0.666666667 | 0.086 |
| 1 | T9981 Fld3 | 2525733 | 0.129 | 16663952 | Cohagen | 25 | Low surface salinization risk | 75 | 0.333333333 | 0.043 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663915 | Parshall | 20 | Low surface salinization risk | 78 | 0.256410256 | 7.3023 |
| 1 | T9981 Fld3 | 2525739 | 28.479 | 16663917 | Vebar | 58 | Low surface salinization risk | 78 | 0.743589744 | 21.1767 |
| 1 | T9981 Fld3 | 2525745 | 4.983 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 | 1 | 4.983 |
| 1 | T9981 Fld3 | 2525746 | 16.106 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 | 1 | 16.106 |
| 1 | T9981 Fld3 | 2525754 | 12.638 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 | 1 | 12.638 |
| 1 | T9981 Fld3 | 2525764 | 17.691 | 16663611 | Regan | 55 | High surface salinization risk or already saline | 55 | 1 | 17.691 |
| 1 | T9981 Fld3 | 2525766 | 0.032 | 16663539 | Water | 100 | Not rated | 100 | 1 | 0.032 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 | 0.545454545 | 98.9215 |
| 1 | T9981 Fld3 | 2525769 | 181.356 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 | 0.454545455 | 82.4345 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 | 0.743589744 | 1.8211 |
| 1 | T9981 Fld3 | 2755648 | 2.449 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 | 0.256410256 | 0.6279 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663846 | Reeder | 60 | Low surface salinization risk | 85 | 0.705882353 | 3.2464 |
| 1 | T9981 Fld3 | 2755654 | 4.599 | 16663847 | Amor | 25 | Low surface salinization risk | 85 | 0.294117647 | 1.3526 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663899 | Daglum | 33 | Low surface salinization risk | 88 | 0.375 | 3.2336 |
| 2 | T9981 Fld4 | 2525720 | 8.623 | 16663903 | Rhoades | 55 | Surface salinization risk | 88 | 0.625 | 5.3894 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664017 | Savage | 30 | Low surface salinization risk | 85 | 0.352941176 | 0.1616 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664018 | Daglum | 20 | Low surface salinization risk | 85 | 0.235294118 | 0.1078 |
| 2 | T9981 Fld4 | 2525724 | 0.458 | 16664022 | Belfield | 35 | Low surface salinization risk | 85 | 0.411764706 | 0.1886 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663991 | Regent | 68 | Low surface salinization risk | 85 | 0.8 | 25.2112 |
| 2 | T9981 Fld4 | 2525730 | 31.514 | 16663992 | Savage | 17 | Low surface salinization risk | 85 | 0.2 | 6.3028 |
| 2 | T9981 Fld4 | 2525745 | 62.205 | 16663921 | Shambo | 75 | Low surface salinization risk | 75 | 1 | 62.205 |
| 2 | T9981 Fld4 | 2525746 | 63.55 | 16663927 | Shambo | 78 | Low surface salinization risk | 78 | 1 | 63.55 |
| 2 | T9981 Fld4 | 2525754 | 23.138 | 16663602 | Harriet | 75 | High surface salinization risk or already saline | 75 | 1 | 23.138 |
| 2 | T9981 Fld4 | 2525767 | 3.86 | 16663540 | Water | 100 | Not rated | 100 | 1 | 3.86 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663985 | Belfield | 48 | Low surface salinization risk | 88 | 0.545454545 | 56.6776 |
| 2 | T9981 Fld4 | 2525769 | 103.909 | 16663987 | Daglum | 40 | Low surface salinization risk | 88 | 0.454545455 | 47.2314 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663554 | Savage | 62 | Low surface salinization risk | 80 | 0.775 | 0.3433 |
| 2 | T9981 Fld4 | 2755639 | 0.443 | 16663555 | Grail | 18 | Low surface salinization risk | 80 | 0.225 | 0.0997 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663957 | Flasher | 30 | Low surface salinization risk | 88 | 0.340909091 | 3.2867 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663958 | Vebar | 40 | Low surface salinization risk | 88 | 0.454545455 | 4.3823 |
| 2 | T9981 Fld4 | 2755643 | 9.641 | 16663959 | Tally | 18 | Low surface salinization risk | 88 | 0.204545455 | 1.972 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663766 | Reeder | 58 | Low surface salinization risk | 78 | 0.743589744 | 8.4635 |
| 2 | T9981 Fld4 | 2755648 | 11.382 | 16663767 | Janesburg | 20 | Low surface salinization risk | 78 | 0.256410256 | 2.9185 |

### Aggregate the Classes and Sum up the Component Acres by Landunit (Tract and Field number)

TRUNCATE TABLE #M10

INSERT INTO #M10

SELECT landunit, rating, SUM (co\_acres) AS rating\_acres

FROM #M8

GROUP BY landunit, rating

ORDER BY landunit, rating\_acres DESC;

| **landunit** | **rating** | **rating\_acres** |
| --- | --- | --- |
| T9981 Fld3 | High surface salinization risk or already saline | 30.329 |
| T9981 Fld4 | High surface salinization risk or already saline | 23.138 |
| T9981 Fld3 | Low surface salinization risk | 263.0367 |
| T9981 Fld4 | Low surface salinization risk | 286.3356 |
| T9981 Fld3 | Not rated | 0.032 |
| T9981 Fld4 | Not rated | 3.86 |
| T9981 Fld3 | Surface salinization risk | 35.5552 |
| T9981 Fld4 | Surface salinization risk | 5.3894 |

### Group of Insert Statements to Populate the Final Output Tables

INSERT INTO #LandunitRatingsDetailed1 (aoiid, landunit, attributename, rating, rating\_key, rating\_num, rating\_pct, rating\_acres, landunit\_acres)

SELECT aoiid, M10.landunit, @attributeName AS attributename, M10.rating, RD.rating\_key, RD.rating\_num,

ROUND ((rating\_acres/ landunit\_acres) \* 100.0, 2) AS rating\_pct,

ROUND (rating\_acres,2) AS rating\_acres,

ROUND ( landunit\_acres, 2) AS landunit\_acres

FROM #M10 M10

LEFT OUTER JOIN #AoiAcres ON #AoiAcres.landunit = M10.landunit

INNER JOIN #RatingDomain RD ON M10.rating = RD.rating

WHERE RD.attributename = @attributeName

GROUP BY aoiid, M10.landunit, M10.rating, rating\_key, rating\_acres, landunit\_acres, rating\_num

ORDER BY landunit, attributename, rating\_num DESC;

aoiid|landunit|attributename|rating|rating\_num|rating\_key|rating\_pct|rating\_acres|landunit\_acres|| ———-|———-|———-|———-|———-|———-|———-|———-|———-|| 1|T9981 Fld3 |Surface Salt Concentration |High surface salinization risk or already saline |1|Surface Salt Concentration:1 |9.22|30.33|328.95|| 1|T9981 Fld3 |Surface Salt Concentration |Low surface salinization risk |3|Surface Salt Concentration:3 |79.96|263.04|328.95|| 1|T9981 Fld3 |Surface Salt Concentration |Not rated |4|Surface Salt Concentration:4 |0.01|0.03|328.95|| 1|T9981 Fld3 |Surface Salt Concentration |Surface salinization risk |2|Surface Salt Concentration:2 |10.81|35.56|328.95|| 2|T9981 Fld4 |Surface Salt Concentration |High surface salinization risk or already saline |1|Surface Salt Concentration:1 |7.26|23.14|318.72|| 2|T9981 Fld4 |Surface Salt Concentration |Low surface salinization risk |3|Surface Salt Concentration:3 |89.84|286.34|318.72|| 2|T9981 Fld4 |Surface Salt Concentration |Not rated |4|Surface Salt Concentration:4 |1.21|3.86|318.72|| 2|T9981 Fld4 |Surface Salt Concentration |Surface salinization risk |2|Surface Salt Concentration:2 |1.69|5.39|318.72||

* Detailed Landunit Ratings1: Rating acres and rating percent by area for each soil-landunit polygon.
* These will be summarized to a single set of interpretation ratings for each landunit. Currently there are 5 interpretations.

### Determine Dominant Critical

INSERT INTO #LandunitRatingsDetailed2 (landunit, attributename, rating, rating\_num, rating\_key, rating\_pct, rating\_acres, landunit\_acres, rolling\_pct, rolling\_acres)

SELECT landunit, attributename, rating, rating\_num, rating\_key, rating\_pct, rating\_acres, landunit\_acres,

rolling\_pct = SUM(rating\_pct) OVER

(

PARTITION BY landunit

ORDER BY rating\_key ROWS UNBOUNDED PRECEDING

),

rolling\_acres = SUM(rating\_acres) OVER

(

PARTITION BY landunit

ORDER BY rating\_key ROWS UNBOUNDED PRECEDING

)

FROM #LandunitRatingsDetailed1

WHERE attributename = @attributeName

ORDER BY landunit, attributename;

| **landunit** | **attributename** | **rating** | **rating\_num** | **rating\_key** | **rating\_pct** | **rating\_acres** | **landunit\_acres** | **rolling\_pct** | **rolling\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| T9981 Fld3 | Surface Salt Concentration | High surface salinization risk or already saline | 1 | Surface Salt Concentration:1 | 9.22 | 30.33 | 328.95 | 9.22 | 30.33 |
| T9981 Fld3 | Surface Salt Concentration | Surface salinization risk | 2 | Surface Salt Concentration:2 | 10.81 | 35.56 | 328.95 | 20.03 | 65.89 |
| T9981 Fld3 | Surface Salt Concentration | Low surface salinization risk | 3 | Surface Salt Concentration:3 | 79.96 | 263.04 | 328.95 | 99.99 | 328.93 |
| T9981 Fld3 | Surface Salt Concentration | Not rated | 4 | Surface Salt Concentration:4 | 0.01 | 0.03 | 328.95 | 100 | 328.96 |
| T9981 Fld4 | Surface Salt Concentration | High surface salinization risk or already saline | 1 | Surface Salt Concentration:1 | 7.26 | 23.14 | 318.72 | 7.26 | 23.14 |
| T9981 Fld4 | Surface Salt Concentration | Surface salinization risk | 2 | Surface Salt Concentration:2 | 1.69 | 5.39 | 318.72 | 8.95 | 28.53 |
| T9981 Fld4 | Surface Salt Concentration | Low surface salinization risk | 3 | Surface Salt Concentration:3 | 89.84 | 286.34 | 318.72 | 98.79 | 314.87 |

* LandunitRatingsDetailed2 is populated with all information plus rolling\_pct and rolling\_acres which are using in the landunit summary rating.
* Detailed Landunit Ratings2 table columns: landunit, attributename, rating, rating\_key, rating\_num, rating\_pct, rating\_acres, landunit\_acres, rolling\_pct, rolling\_acres.

### Landunit Ratings CART

INSERT INTO #LandunitRatingsCART (id, landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres)

SELECT ROW\_NUMBER() OVER(PARTITION BY landunit ORDER BY rating\_key ASC) AS "id",

landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres

FROM #LandunitRatingsDetailed2

WHERE attributename = @attributeName AND (rolling\_pct >= @minPct OR rolling\_acres >= @minAcres)

* Identifies the single, most limiting rating (per landunit) that comprises at least 10% by area or 10 acres.
* This record will have an id value of 1.

| **id** | **landunit** | **attributename** | **rating** | **rating\_key** | **rolling\_pct** | **rolling\_acres** | **landunit\_acres** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | T9981 Fld3 | Surface Salt Concentration | High surface salinization risk or already saline | Surface Salt Concentration:1 | 9.22 | 30.33 | 328.95 |
| 2 | T9981 Fld3 | Surface Salt Concentration | Surface salinization risk | Surface Salt Concentration:2 | 20.03 | 65.89 | 328.95 |
| 3 | T9981 Fld3 | Surface Salt Concentration | Low surface salinization risk | Surface Salt Concentration:3 | 99.99 | 328.93 | 328.95 |
| 4 | T9981 Fld3 | Surface Salt Concentration | Not rated | Surface Salt Concentration:4 | 100 | 328.96 | 328.95 |
| 1 | T9981 Fld4 | Surface Salt Concentration | High surface salinization risk or already saline | Surface Salt Concentration:1 | 7.26 | 23.14 | 318.72 |
| 2 | T9981 Fld4 | Surface Salt Concentration | Surface salinization risk | Surface Salt Concentration:2 | 8.95 | 28.53 | 318.72 |
| 3 | T9981 Fld4 | Surface Salt Concentration | Low surface salinization risk | Surface Salt Concentration:3 | 98.79 | 314.87 | 318.72 |
| 4 | T9981 Fld4 | Surface Salt Concentration | Not rated | Surface Salt Concentration:4 | 100 | 318.73 | 318.72 |

### Final CART Soil Interpretation Ratings for Each Landunit

INSERT INTO #LandunitRatingsCART2 (landunit, attributename, rating, rating\_key, rolling\_pct, rolling\_acres, landunit\_acres, soils\_metadata)

SELECT LC.landunit, LC.attributename, LC.rating, LC.rating\_key, rolling\_pct, rolling\_acres, landunit\_acres, MD.soils\_metadata

FROM #LandunitRatingsCART LC

INNER JOIN #RatingDomain RD ON LC.attributename = RD.attributename AND LC.rating = RD.rating

INNER JOIN #LandunitMetadata MD ON LC.landunit = MD.landunit

WHERE LC.id = 1

ORDER BY landunit, rating\_key;

* The LandunitRatingsCART table will have all data, but the record for the overall landunit rating will have an id = 1.

| **landunit** | **rating\_key** | **soils\_metadata** |
| --- | --- | --- |
| T9981 Fld3 | Surface Salt Concentration:1 | ND001 2018-09-12 19:21:50 SD105 2018-09-12 23:49:29 |
| T9981 Fld4 | Surface Salt Concentration:1 | ND001 2018-09-12 19:21:50 |

## References

1. J. L. Arndt, and J.L. Richardson. 1988. Hydrology, salinity and hydric soil development in a North Dakota prairie-pothole wetland system. Wetlands 8(2):93--108.
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3. Woods S.A., M.F. Dyck, and R.G. Kachanoski. 2013. Spatial and temporal variability of soil horizons and long-term solute transport under semi-arid conditions. Canadian Journal of Soil Science 93(2):173--191.