Title: Freezer Preparation For Shipping (Urine)

IT Code:

Purpose: The IT Group is responsible for performing a database driven QC procedure on CLASS SWAN freezers selected for shipment to the SWAN Repository and for generating an electronic inventory of the samples contained in those freezers.

Procedure: The Database Administrator (DBA) receives a list of freezer ids and a target ship date from the Laboratory Manager. For each freezer in that list, the DBA performs the following steps:

Step 1: Check that the number of boxes for the freezer is correct (the maximum box number for a urine freezer is 288). If the number of boxes is greater than 288, we request a freezer inventory.

Code Example:

```
Select count (fbox_rbid) from swn_box_raw where fbox_frid = '62u'
```

Step 2: Check whether the number of tubes in each box in the freezer is correct (the maximum tube number for each box in a urine freezer is 36). If the number of tubes is greater than 36, we request a box inventory.

Code Example:

```
Select fbox_rbid, count (fbox_rbid) from swn_sample_raw
Where fbox_rbid in (select fbox_rbid from swn_box_raw where fbox_frid = '62u')
Group by fbox_rbid
Having count (fbox_rbid) > 36
```

Step 3: Check if there is a box location (row, column) with more than one tube specified. If found, we request an inventory of that box (and maybe other in that freezer).
Step 4: Find out how many tubes of this freezer are NOT Urine tubes (urine tube SID's range is between 36800000 and 39000000). If any are found, we create a pull list and have them removed from this freezer.

    Code Example:
    Select * from swn_sample_raw
    Where fbox_rbid in (select fbox_rbid from swn_box_raw where fbox_frid = '62u')
    And (smpl_rsid between 36799999 and 39000000)

Step 5: Create a temp relation ("fs62_urinetubes") which contains all of urine tubes in this freezer. We will use this relation to do steps 6 through 8.

    Code Example:
    Select * into fs62_urinetubes from swn_sample_raw
    Where fbox_rbid in (select fbox_rbid from swn_box_raw where fbox_frid = '62u')
    And (smpl_rsid between 36799999 and 39000000)

Step 6: Find out how many “B” type urine tubes in the freezer. Since we normally ship “A” type freezers, we request that any “B” type tubes found be pulled from the freezer. Otherwise we don't need to do this step.

    Code Example:
    Select * from fs62_urinetubes where (convert (int, (smpl_rsid/2))*2 = smpl_rsid)
Step 7: Find those urine tubes which have NOT been assayed yet. If any are found, we will first try to find their results from our assay history records (in case of they have been assayed but have not been imported into our database for some reason). Second, we will find whether or not these tubes are QNS samples (without enough sample volume). Lastly, we will either include these samples in the current sample picklist and assay them, or pull them from this freezer before shipment.

Code Example:

```
Select distinct smpl_rsid into fs62_Notassayed FROM fs62_urinetubes
Where smpl_rsid not in (select smpl_rsid from swn_assay_master)
```

Step 8: Find those urine tubes which have been assayed but only have partial results. If any are found, we will first try to find their results from our assay history records (in case of they have been assayed but have not been imported into our database for some reason). Second, we will find whether or not these tubes are QNS samples (without enough sample volume). Lastly, we will include these samples in the current sample picklist and assay them, or pull them out from this freezer before shipment.

Code Example:

```
Select smpl_rsid, count (smpl_rsid) as smpl_cnt into fs62_partialAssayed
From swn_assay_master
Where assay_rptd = 'Y' and smpl_rsid in (select smpl_rsid from fs62_urinetubes)
Group by smpl_rsid having count (smpl_rsid) < 5
```

In addition, we need to find out which analyte (CREA, E1C, PROG, ULH and UFSH) is (or are) pending:

Code Example:

```
Select * into fs62_pendingULH from fs62_partialassayed
Where smpl_rsid not in (select distinct smpl_rsid from swn_assay_master
where assay_assy = 'ULH' and assay_rptd = 'Y')
```

Step 9: Prepare the “Location Data File” for each freezer and send them to both the Repository DBA (Dr. Sowers Group) and the Repository agent (McKesson). This location data file contains 11 fields listed below:
### Fields | Values | Comments
--- | --- | ---
Sample ID | 37101402 | Default Value is "NULL".
Subject ID | 1402748 | Default Value is "NULL".
Visit Number | H4.U | 'GO' - the tube with sufficient value.
| | | 'NOGO' - the tube with insufficient value.
Tube Volume | GO (NOGO) | "SIMPORT" indicates the 2ml or 1 ml tube. It could contain serum, plasma, or urine.
| | | "5ML" indicates that the 5ml tube. It could contain serum or urine.
Freezer ID | 48000062 | 
Rack ID | 50040108 | 
Box ID | 44007645 | 
Box Row | 1 | 
Box Column | 1 | 
Tube Type | "SIMPORT" or "5ML" | 
Additives | NULL | we don't have this information in our DB.

This file is created using the following sub-steps:

**Step 9.a:** Retrieve the: “Tube Volume”, “Freezer ID”, “Rack ID”, “Box ID”, “Box Row”, “Box Column”, “Tube Type”, and, “Sample ID” fields from our “Sample” and “Box” relations.

**Code example:**

```sql
Select a.smpl_volu, b.fbox_frid2, b.fbox_rcid, a.fbox_rbid, a.smpl_rowv, a.smpl_colv, a.smpl_tube, a.smpl_rsid
Into frzr_62
From swn_sample_raw a left join swn_box_raw b on a.fbox_rbid = b.fbox_rbid
Where b.fbox_frid = '62u'
```

**Step 9.b:** Retrieve the: “Visit Number”, and “Subject ID”, from our “Plan” relation.

**Code example:**

```sql
Select distinct smpl_rsid as smpl_rsid2, smpl_btch, smpl_nsbj
Into plan_62
From swn_plan_clean where smpl_rsid in (select smpl_Rsid from frzr_62)
```
**Step 9.c:** Update the Subject ID from our 9 digit version to the 7 digit type which the repository needs:

*Code example:*

```
Alter table plan_62 add smpl_nsbj2 char(7)
Alter table plan_62 alter column smpl_nsbj char(9)
Update plan_62 set smpl_nsbj2 = ltrim (substring(smpl_nsbj,1,7))
```

**Step 9.d:** Combine all of fields which have been retrieved from the “Plan”, “Sample” and “Box” relations:

*Code example:*

```
Select a.smpl_rsid2, a.smpl_nsbj2, a.smpl_btch, b.*
Into freezer_62u
From plan_62 a left join frzr_62 b on a.smpl_rsid2 = b.smpl_rsid
Order by b.fbox_rcid, b.fbox_rbid, b.smpl_rowv, b.smpl_colv
```

**Step 9.e:** Add an extra field as a place holder (which we don’t have in our DB but is required by the Repository).

*Code example:*

```
Alter table freezer_62u add extra_one char (4) null
```