Title: Freezer Preparation For Shipping (Serum Simport)

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 simport freezer is 396). If the number of boxes is greater than 396, we request a freezer inventory.

Code Example:

```
Select count (fbox_rbid) from swn_box_raw where fbox_frid = '51u'
```

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 simport freezer is 81). If the number of tubes is greater than 81, 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 = '51u')
Group by fbox_rbid having count (fbox_rbid) > 81
```

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).
Code Example:

```
Select a.*, b.* from swn_sample_raw a, swn_sample_raw b
Where a.fbox_rbid in (select fbox_rbid from swn_box_raw
where fbox_frid = '51u')
And (a.fbox_rbid = b.fbox_rbid
And a.smpl_rowv = b.smpl_rowv
And a.smpl_colv = b.smpl_colv
And a.smpl_rsid != b.smpl_rsid)
```

**Step 4:** Find out how many tubes of this freezer are NOT simport tubes 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 = '51u')
And smpl_tube != 'SIMPORT'
```

**Step 5:** Create two temp relations that will be used to do step 6 to 8. "fs51_simportubes" contains all of regular SWAN simport tubes. "fs51_chicagotubes" contains all of Chicago Site simport tubes. We will need to pull these tubes out from this freezer because this is a different project.

Code Example:

```
select * into fs51_simportubes from swn_sample_raw
where smpl_rsid > 21999999 and fbox_rbid in
  (select fbox_rbid from swn_box_raw where fbox_frid = '51u')

select * into fs51_chicagotubes from swn_sample_raw
where smpl_rsid < 22000000 and fbox_rbid in
  (select fbox_rbid from swn_box_raw where fbox_frid = '51u')
```

**Step 6:** Retrieve the subject ID which are associated with these simport tubes of this freezer into a temp relation called fs51_nsbj for checking their primary tube whether or not have been assayed and reported.

Code Example:

```
select distinct smpl_nsbj into fs51_nsbj from swn_plan_clean
where smpl_rsid in (select smpl_rsid from fs51_simportubes)
```
**Step 7:** Find out those primary 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:*

```sql
select distinct smpl_rsid into fs51_5mlNotAssayed from swn_plan_clean
where smpl_nsbj in (select smpl_nsbj from fs51_nsbj)
and (plan_assy != 'INHB' and plan_assy != 'NA')
and smpl_btch not like '%U'
and smpl_rsid not in (select smpl_rsid from swn_assay_master where assay_rptd = 'Y')
```

**Step 8:** Find out those primary tubes which have been assayed yet.

*Code Example:*

```sql
select distinct smpl_rsid into fs51_5mlAssayed
from swn_plan_clean
where smpl_nsbj in (select smpl_nsbj from fs51_nsbj)
and (plan_assy != 'INHB' and plan_assy != 'NA')
and smpl_btch not like '%U'
and smpl_rsid in (select smpl_rsid from swn_assay_master where assay_rptd = 'Y')
```

**Step 9:** Find those primary 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:*

```sql
Select smpl_rsid, count (smpl_rsid) as smpl_cnt into fs51_5mlPtAssayed
From swn_assay_master
Where assay_rptd = 'Y' and smpl_rsid in (select smpl_rsid from fs51_5mlAssayed)
Group by smpl_rsid having count (smpl_rsid) < 6
```

In addition, we need to find out which analyte (followUp: DHAS, FSH, SHBG, E2a, E2b, E); DHS Serum: (DHAS, FSH, LH, E2a, E2b, PROG) is (or are) pending:
Step 10: 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:

<table>
<thead>
<tr>
<th>Fields</th>
<th>Values</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample ID</td>
<td>37101402</td>
<td></td>
</tr>
<tr>
<td>Subject ID</td>
<td>1402748</td>
<td>Default Value is &quot;NULL&quot;.</td>
</tr>
<tr>
<td>Visit Number</td>
<td>H4.U</td>
<td>Default Value is &quot;NULL&quot;.</td>
</tr>
<tr>
<td>Tube Volume</td>
<td>GO (NOGO)</td>
<td>&quot;GO&quot; - the tube with sufficient value.</td>
</tr>
<tr>
<td>Freezer ID</td>
<td>48000062</td>
<td></td>
</tr>
<tr>
<td>Rack ID</td>
<td>50040108</td>
<td></td>
</tr>
<tr>
<td>Box ID</td>
<td>44007645</td>
<td></td>
</tr>
<tr>
<td>Box Row</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Box Column</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Tube Type</td>
<td>&quot;SIMPORT&quot; or &quot;5ML&quot;</td>
<td>&quot;SIMPORT&quot; indicates the 2ml or 1 ml tube.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It could contain serum, plasma, or urine.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;5ML&quot; indicates that the 5ml tube. It could contain serum or urine.</td>
</tr>
<tr>
<td>Additives</td>
<td>NULL</td>
<td>we don’t have this information in our DB.</td>
</tr>
</tbody>
</table>

This file is created using the following sub-steps:

Step 10.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_51
From swn_sample_raw a left join swn_box_raw b on a.fbox_rbid = b.fbox_rbid
Where b.fbox_frid = '51u'
```

Step 10.b: Retrieve the: “Visit Number”, and “Subject ID”, from our “Plan” relation.

Code example:
Step 10.c: Update the Subject ID from our 9 digit version to the 7 digit type which the repository needs:

Code example:

```
Alter table plan_51 add smpl_nsbj2 char(7)
Alter table plan_51 alter column smpl_nsbj char(9)
Update plan_51 set smpl_nsbj2 = ltrim (substring(smpl_nsbj,1,7))
```

Step 10.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_51u
From plan_51 a left join frzr_51 b on a.smpl_rsid2 = b.smpl_rsid
Order by b.fbox_rcid, b.fbox_rbid, b.smpl_rowv, b.smpl_colv
```

Step 11.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
```