

Presentation for the Nuclear Waste Technical Review Board

Overview of Product Control Plan and Glass Sampling Program February 10, 1992

The DWPF Product Control Program

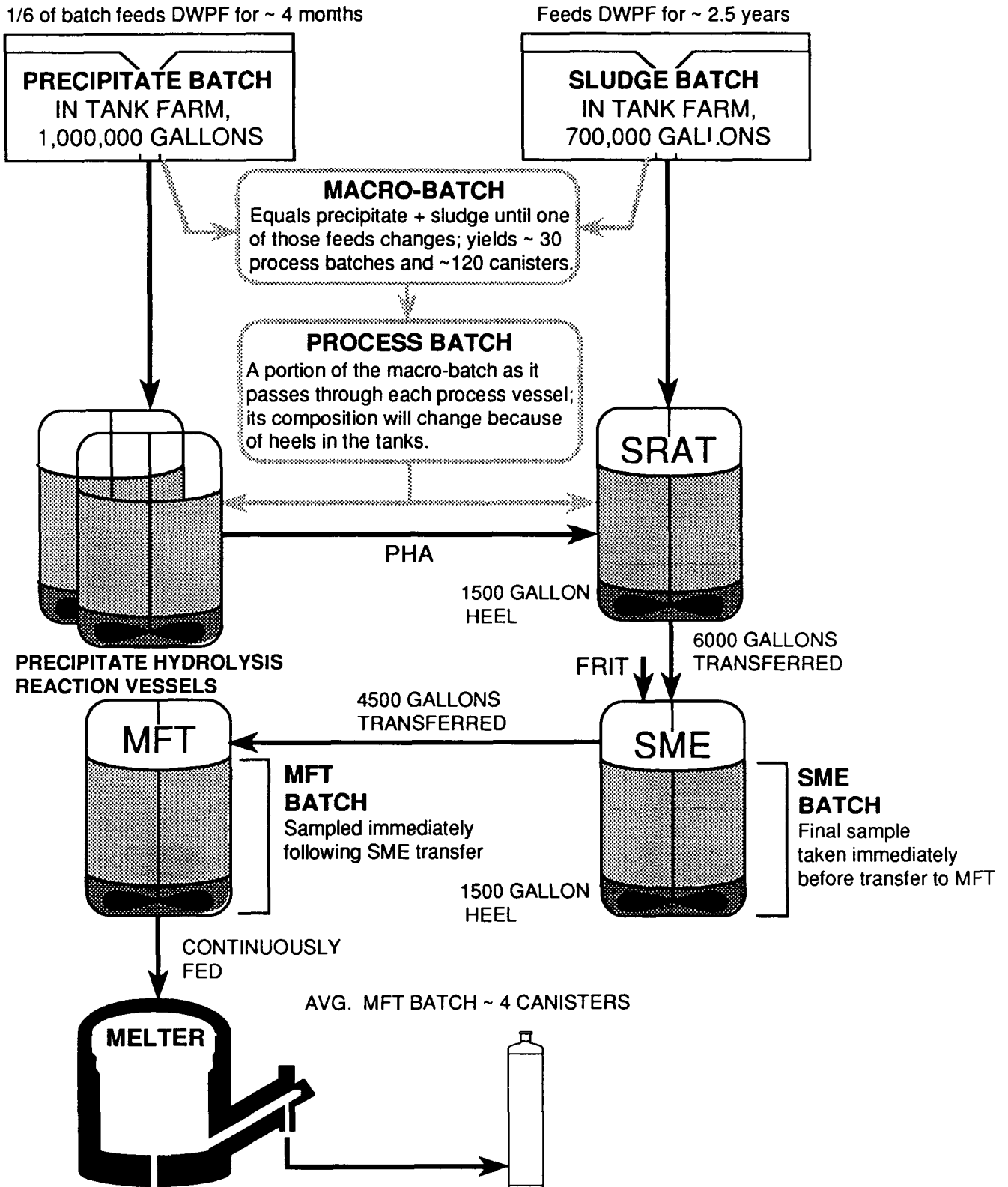
Sharon L. Marra



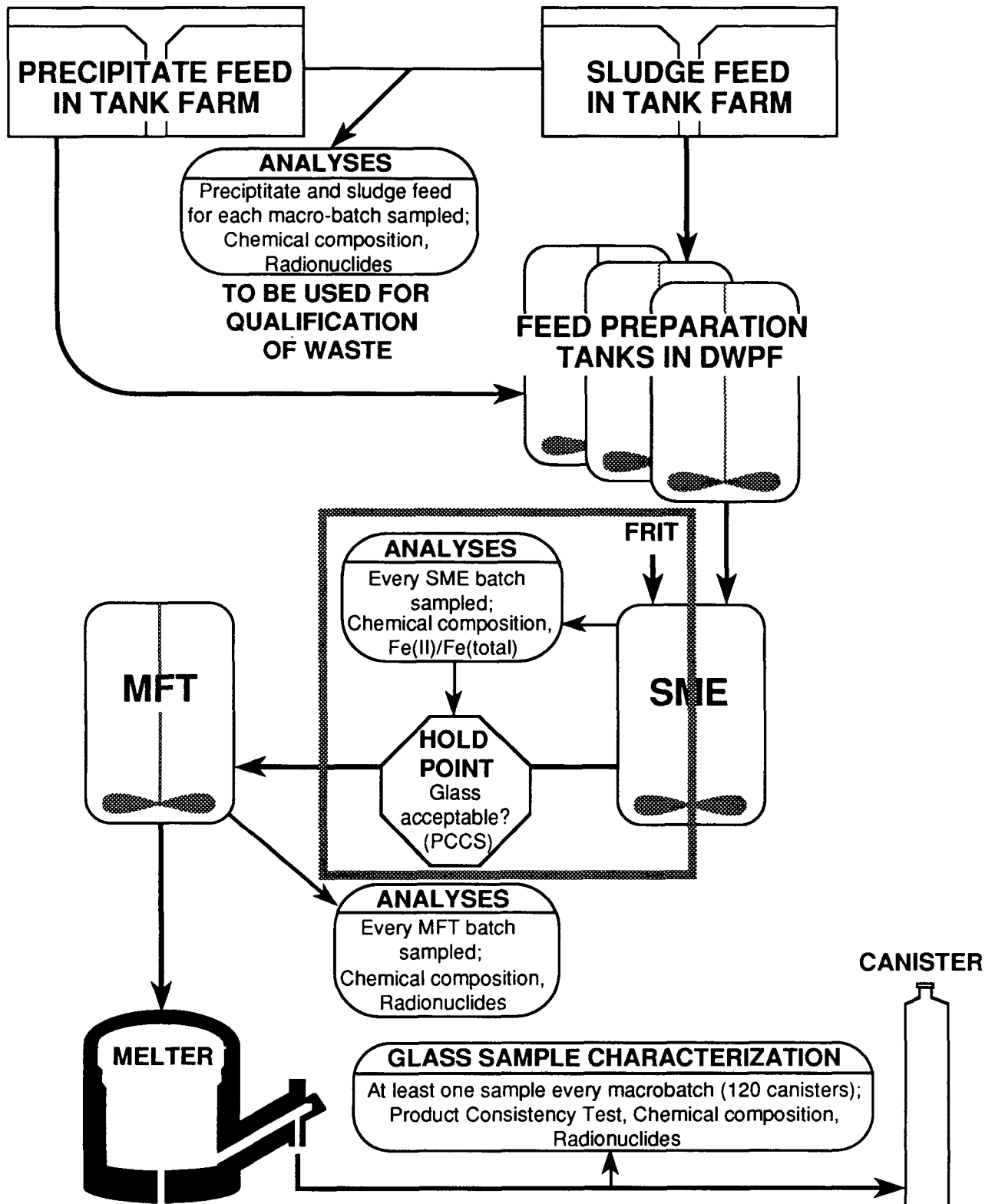
ELEMENTS OF PROGRAM

- **Qualification of waste**
- **Slurry Mix Evaporator (SME) sampling and analyses**
- **Determination of the acceptability of the feed**
- **Feed adjustment, if necessary**
- **Confirmation that an acceptable glass has been produced**
- **Verification that a consistent glass product has been produced, in the Production Records**

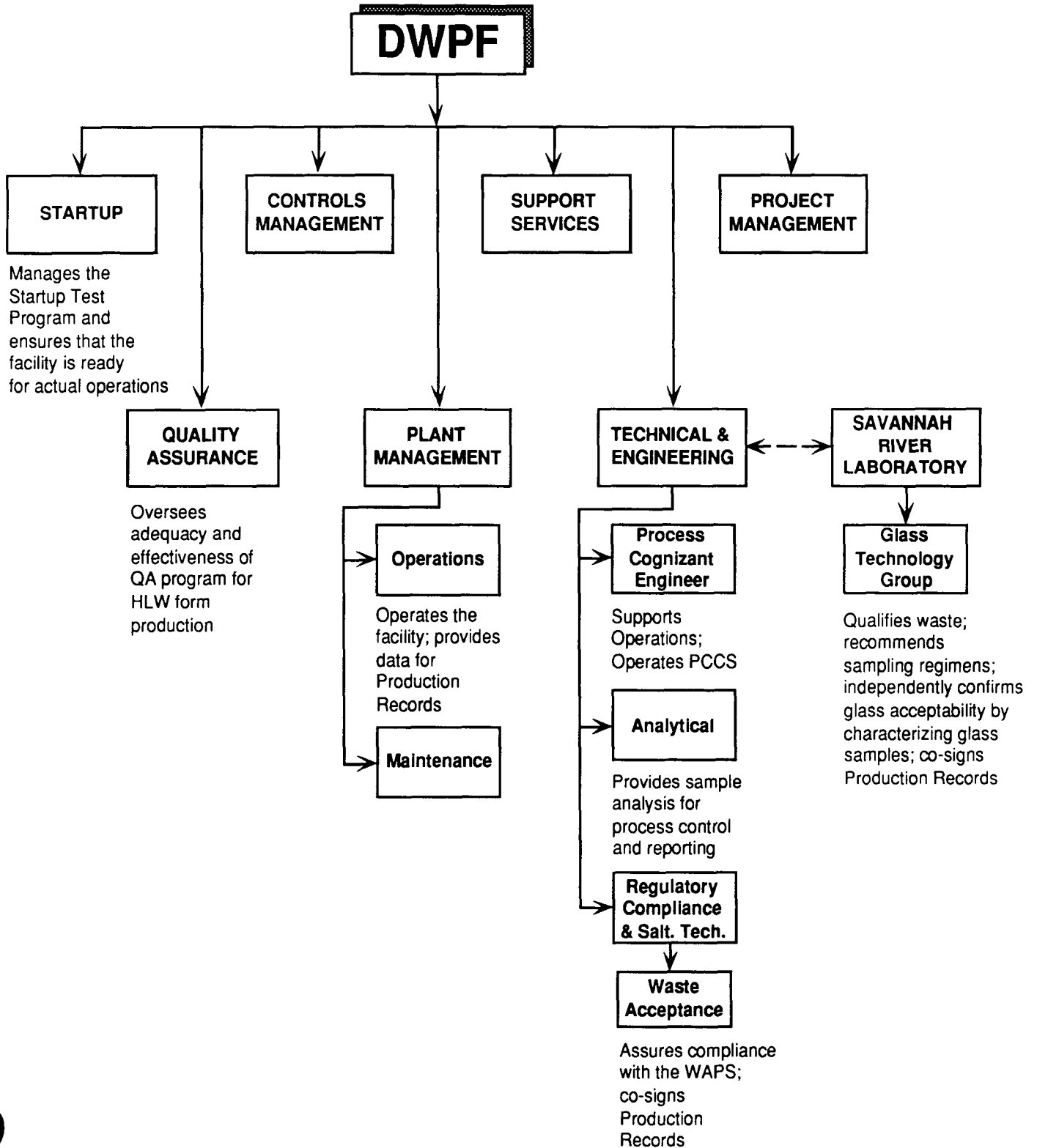
DWPF PRODUCTION BATCHES



DWPF PRODUCT CONTROL



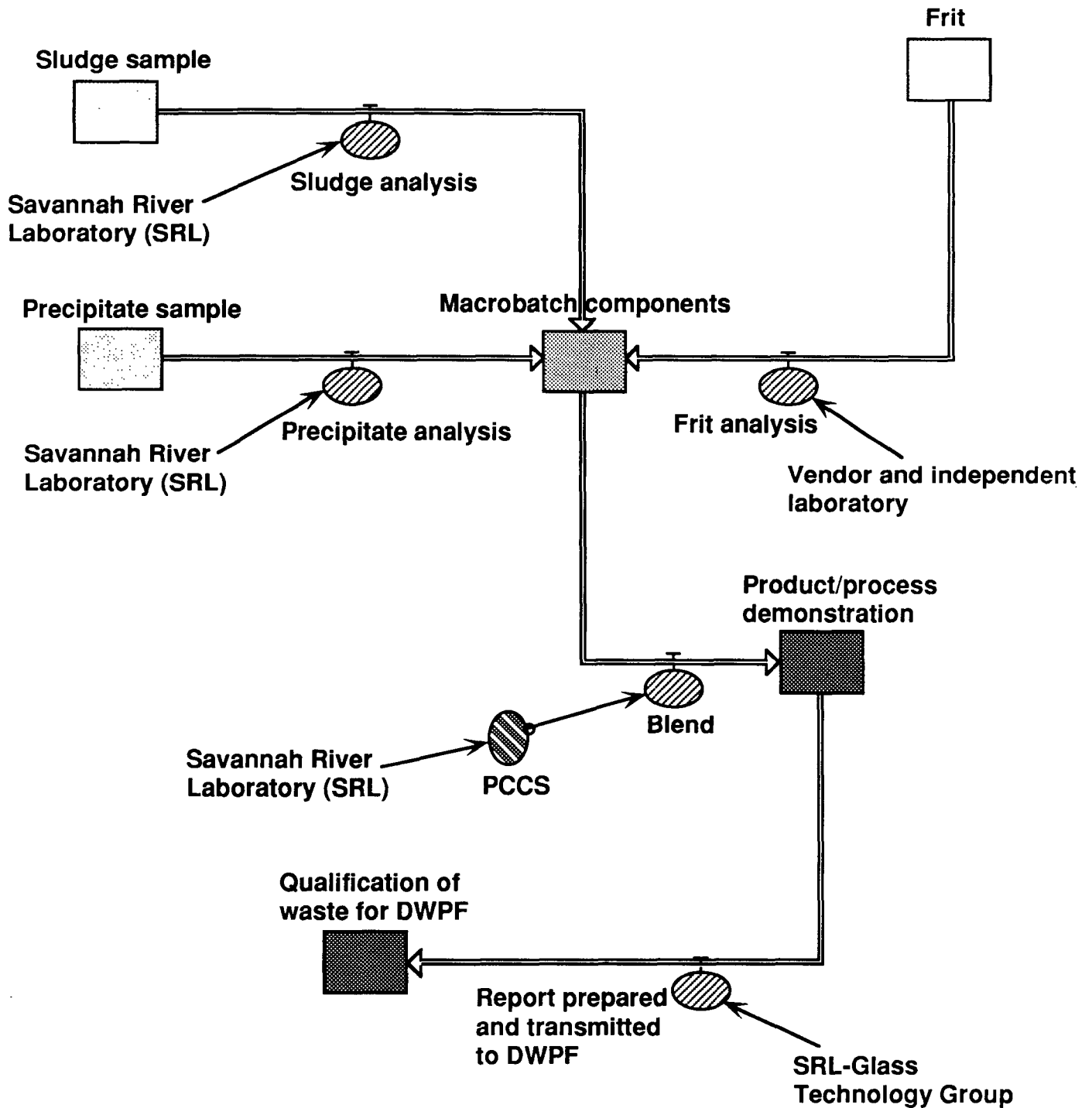
DWPF ORGANIZATION



QUALIFICATION OF WASTE

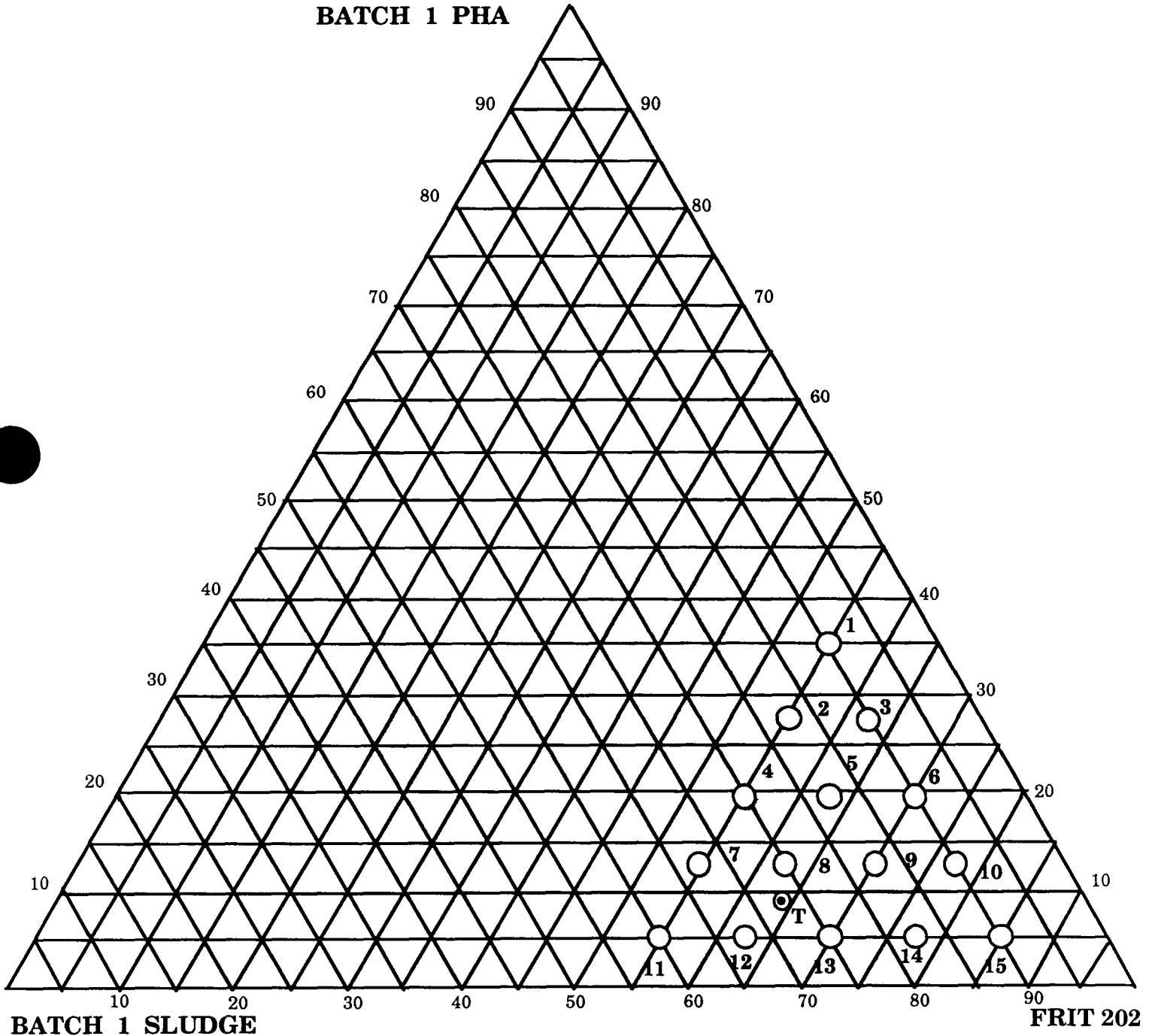
- **Sludge and precipitate feed for each macro-batch**
 - **characterized by SRL**
 - **major elements identified (>0.5 wt%)**
- **Blend established using sludge, precipitate, and frit compositions**
- **Glass produced with actual waste using blend**
 - **demonstrate product quality/process reliability for the macro-batch**

QUALIFICATION OF WASTE



WASTE GLASS COMPOSITION FIELD

BATCH 1 PHA

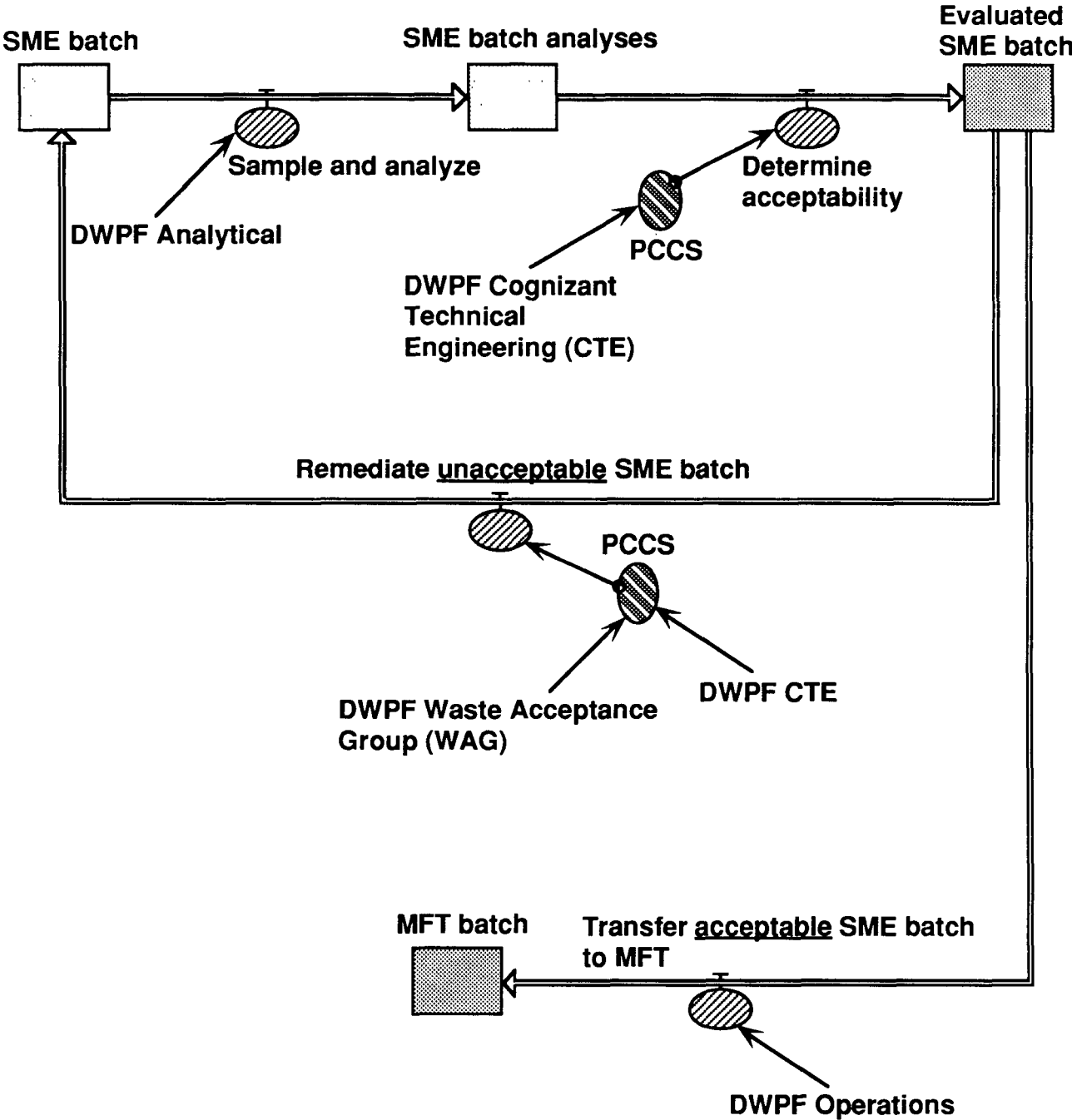


EVALUATION OF ACCEPTABILITY

HOLD POINT

- **Every SME batch sampled**
 - **slurry samples vitrified and chemical composition and Fe²⁺/Fe_{total} determined**
- **No material transferred from SME until it is determined to be acceptable (better than EA glass)**
 - **if acceptable transfer from SME to MFT**
 - **if unacceptable, adjust feed (addition of frit and/or trim chemicals) and resample**
- **Use of PCCS to judge acceptability and ensure high confidence**

EVALUATION OF ACCEPTABILITY



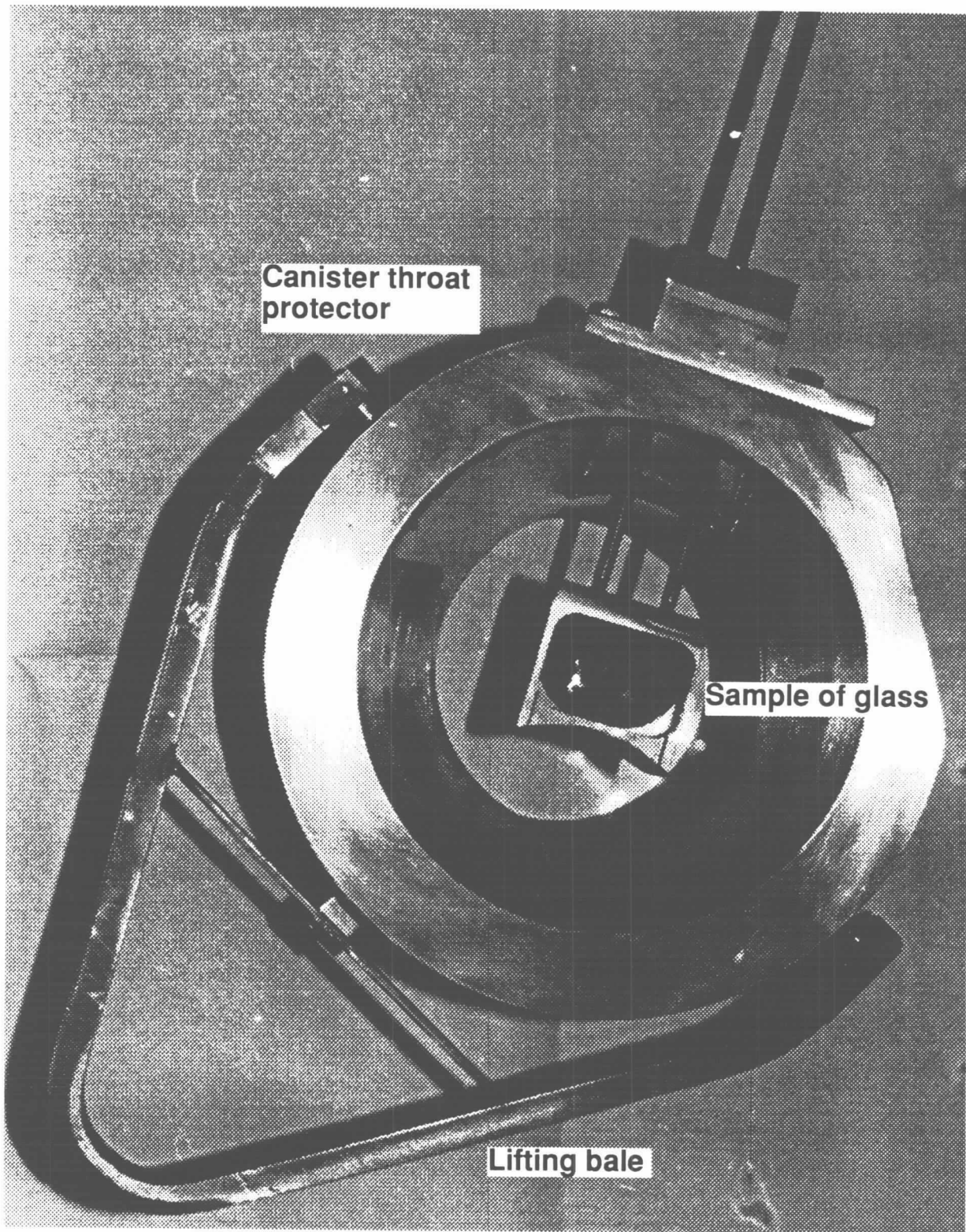
VERIFICATION OF CONTROL

- **PCT results projected from SME batch chemical compositions and averaged over macrobatch**
- **PCT results from occasional analyses of glass pour stream samples**
- **Data is analyzed, reconciled, reviewed and then reported in the Production Records for the macrobatch**
- **Production Records co-signed by DWPF's Waste Acceptance Group and SRL's Glass Technology Group**

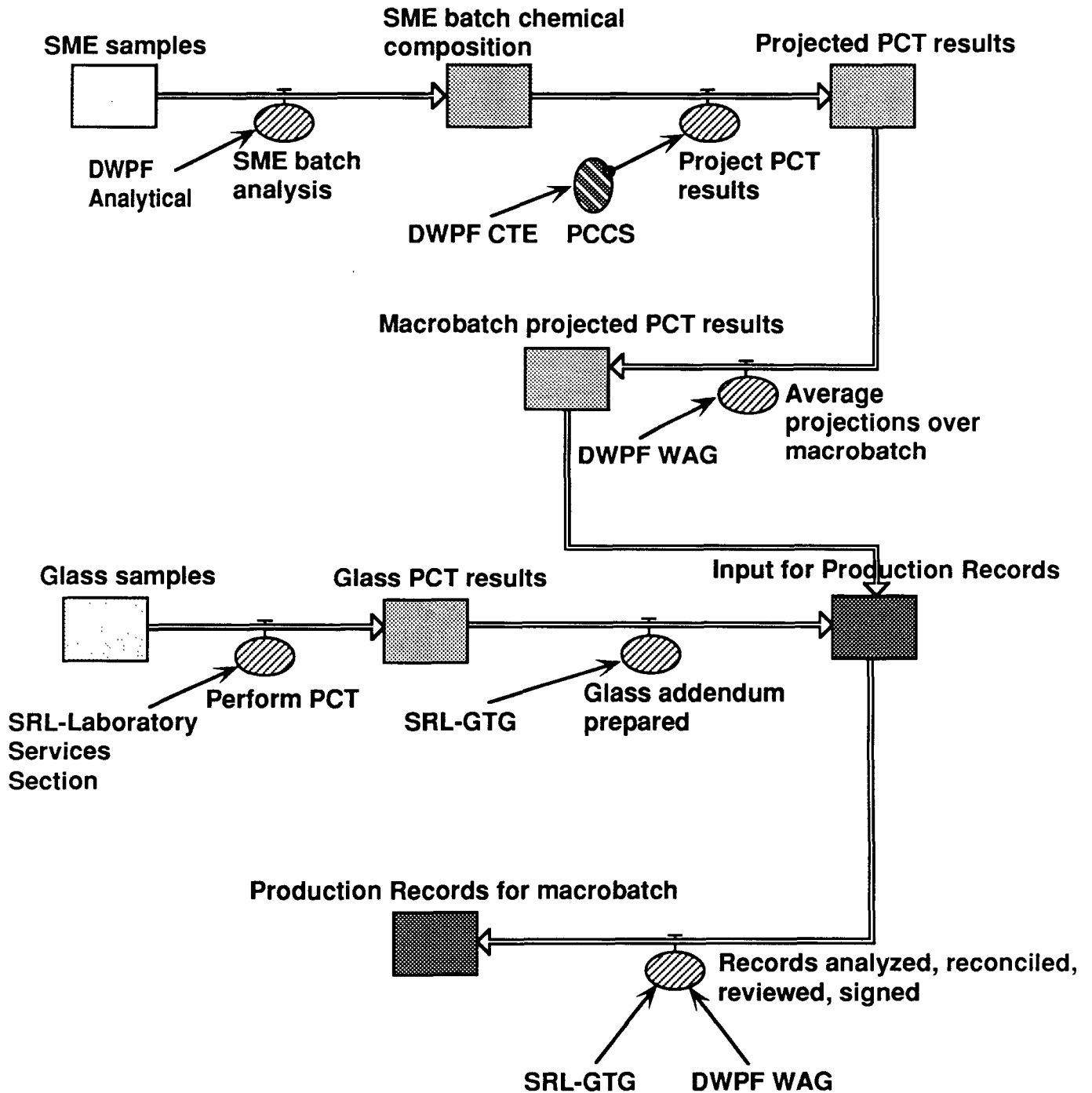
GLASS POUR STREAM SAMPLING

- **Samples periodically taken for confirmation of product control**
- **Analyzed by SRL**
 - **uniformity**
 - **Product Consistency Test (PCT)**
 - **chemical composition**
 - **radionuclides**

DWPF GLASS SAMPLER



VERIFICATION OF CONTROL



CONCLUSION

- **DWPF has developed a Glass Product Control Program which will:**
 - **ensure glass product satisfies the WAPS**
 - **document that specifications have been met**
- **Program will be used and refined as part of Qualification Runs**