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| AUTH. NAME | AUTHOR AFFILIATION |
| POPE, J.M. | West Valley Nuclear Services Co., Inc. |
| RECIP. NAME | RECIPIENT AFFILIATION |
| BIXBY, W.W. | Energy, Dept. of |

SUBJECT: Forwards minutes of West Valley Vitrification Qualification Run SF-12 info meeting on 891031.

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West Valley
Nuclear Services Company
Incorporated

WD:89:0920

R. Weller

November 21, 1989

Dr. W. W. Bixby, Director
West Valley Project Office
U. S. Department of Energy
P.O. Box 191
West Valley, NY 14171-0191

Dear Dr. Bixby:

**SUBJECT: Minutes of the West Valley Vitrification Qualification
Run SF-12 Informational Meeting**

The meeting brought key regulatory, DOE and Producer organizations to West Valley to observe the full-size vitrification process operating remotely (from the control room) as it will in radioactive service and being controlled to produce quality glass meeting the WAPS. The agenda for the meeting is given in Attachment 1 and the list of attendees in Attachment 2. These minutes are being provided to all attendees.

The meeting objectives were:

- o Enhance the regulators' understanding of HLW vitrification technology.
 - Specifically, present the Project's strategy, i.e., Process Control Plan (PCP), for achieving a product that satisfies the WAPS.
- o Provide the PCP in the form of an activity-logic network tied to quality assurance requirements and corresponding real process data generated (as shown in Attachment 3).
 - The essential elements of the PCP (as articulated in our WCP) for radioactive operation are:
 - a. Feed composition control;
 - b. Melter temperature control;
 - c. Selective product composition verification (leaching performance is based upon composition; prior to radioactive log production, full-scale non-radioactive and laboratory radioactive glass will have been correlated with composition).

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- o Utilize WVDP support organizations such as PNL and CUA-VSL to present their results to substantiate these PCP bases.
- o Show the similar and consistent approach with Savannah River (DWPF) in meeting the WAPS.
- o Obtain comments from the interfacing regulatory licensing organizations on the Project's approach and corresponding vitrification process results to meet the WAPS.
 - These perspectives or positions are integral to the Producers' planning for radioactive operations startup.

NRC feedback received included the following:

- o NRC-HLW Management verbalized their comments via conference call, indicating that they would be issued in the form of a trip report. Messrs. J. Bunting, R. Weller, M. Lee, and J. Schiffgens represented the NRC staff. Their consultants who participated during the call were B. Adams and H. Manatkala. Messrs. E. Maestas, W. Bixby, J. Buggy, and J. Pope represented the West Valley (WV) side. W. Stringfield and Ms. D. Lege were also present at West Valley during the call. Complimentary remarks were provided on the overall orientation benefit of the meeting and the quality of the presentations; the vitrification processing effort as a whole was termed "well run".

Their specific comments are paraphrased here in advance of their issuance for expeditious use by the other meeting participants:

- DOE must consider what to do with "out of spec" canisters, which encompasses any such canisters destined for the repository. It was indicated to the NRC that the Producers/DOE are planning no capability to rework filled canisters that do not meet the specifications. These canisters might necessitate special performance assessment analysis or possibly a special overpack.
- The expected leach performance of production glass should be verified with samples from the full-size radioactive process. This was in response to the NRC staff being told that DOE waste producers had the capability to sample production glass, but that West Valley did not plan to leach test production glass.

The NRC also expressed the desirability of a "research program" performing leach testing under repository conditions to : a) correlate radioactive (production) glass with glass containing simulated waste; b) generate a data base for waste package performance models; and c) increase confidence.

- The NRC staff has not seen a relationship between the Waste Acceptance Preliminary Specifications (WAPS) and the performance allocation in the repository's Site Characterization Plan (SCP).
- The NRC staff indicated that they could not provide affirmation that the Producers' glass compositions are adequate because, again, DOE has not demonstrated the linkage from performance allocation to performance assessment.
- The DOE/Producers should establish the water content, hydration, OH^- , or otherwise, found in the glass product, and determine if it will adversely affect glass performance. One concern relates to subsequent pressurization of canisters due to radiolytic gas generation.
- DOE should demonstrate that any corrosion products from the waste package (EBS) will not affect waste package integrity based on leaching and corrosion. It is recognized that this cannot be finalized until the repository container material is chosen.
- Producers should verify that selected chemical elements that are planned to be measured for process feed control are the only ones required, and that the very low concentration species that may not usually be measured have no adverse effect on product acceptability. This response was in reply to West Valley's analytical program of controlling melter feed around 26 primary constituents, which satisfies the WAPS in terms of reporting those species in excess of 0.5 wt%.

Note: "All" species are expected to be routinely determined in radioactive operations.

- RCRA (EPA) requirements should be taken into account by OCRWM and the Producers because the WAPS have no such criteria. (It was recognized that NRC has no jurisdiction in these matters, but offered this observation).

- Samples from each glass canister should be archived in the event subsequent information arises which brings performance in question.

During the discussion which ensued, Mr. Bunting, NRC staff, wanted to make it clear that the NRC staff does not have approval authority where vitrification is concerned. He emphasized that their specific comments identified above were for consideration for possible implementation.

Mr. Maestas, DOE-WV, asked if the NRC staff HLW division was going to issue a branch technical position on HLW vitrification, and Mr. Weller replied that they in effect had done so by approving the WAPS.

- o During the meeting Mr. Weller indicated that the NRC wants to participate in the Waste Acceptance Process (WAP) and review the WAP documentation including all WQRs. It was expressed that DOE and the Producers are currently operating under the impression that the NRC staff will review only Quality Assurance (QA), Process Control Program (PCP) documentation, and selected WQR packages. This follows the DOE's position outlined in the Mr. Stein to Mr. Youngblood letter of June 27, 1989, and apparently will be reaffirmed in response to NRC's letter of October 13, 1989.
 - If WAPS are still in the process of change, this could delay comments, agreements, etc. which could impact schedules for startup.
- o D. Schelor, OCRWM-QA, indicated that they will revisit the WVDP in the April time frame to conduct a more detailed surveillance/audit of the SF-12 vitrification run and overall process testing program. NRC identified their intention to also be prepared to support such a review.

Consensus comments received during the meeting included:

- o The roles in conducting leach testing beyond the WAPS should be coordinated by OCRWM. Such testing is the responsibility of OCRWM.
- o We should reach a consensus on the appropriate set of assumptions related to the repository as leach testing is performed. Agreements should be obtained from all: OCRWM-PA, PASS, Producers, NRC, etc.

- o The strategy of producing quality glass (that meets the WAPS) based on feed composition control is the same approach used in the commercial glass industry with high success.

Individual comments received included the following:

- o The process control method of composition determination in the melter feed appears well thought out and should enable only acceptable compositions to enter the melter.
- o It appears that the West Valley process can and has produced quality glass meeting specifications. You have also realized that careful attention to final design implementation, QA, and operational procedures will be required to maintain that quality through hot production.
- o The detailed mass balance and analysis of melter feed and glass composition reflects an admirable effort to ensure that glass composition complies with WAPS. This appears to "go the full measure" to insure quality of product. Continue to take operational experience into account to ensure that any potential areas for error are covered with adequate QA procedures covering sampling, quality of feed materials and amounts and potential areas for mass balance errors.
- o It is commendable to perceive that the Producers are not merely striving to do minimal effort to produce a glass that meets specifications, but are actively utilizing statistical process control, modelling glass leaching behavior to project long term behavior, etc.
- o There was no discussion about the effect on materials of radiation for the hot operational period. Look for effects on instrumentation in particular. "Instrumentation drift" was discussed and this was for cold operations. Hot operations may exacerbate "drift".
- o West Valley should contact a commercial glass analytical laboratory and invite them to visit to obtain any recommendations for enhanced accuracy or precision. (This should not be interpreted that WV is having difficulties).
- o Melter feed nozzle plugging is a known occurrence which requires a proven remedy available for hot operations.

- o It would be wise to have a back-up method for level sensing due to known problems with slurries.
- o It appears that a number of possible design changes and operational procedures will occur during final design implementation. Remote operations may thus impact the level of effort (hot cell sampling) and methods for maintenance (nozzle unplugging).

Summary:

A meeting was held which brought all key organizations for HLW vitrification acceptance to West Valley to observe the performance and control of the SF-12 qualification run in producing glass meeting the WAPS.

Positive feedback was obtained from essentially all participants on the control strategy and supportive results. The meeting thus benefitted the WVDP, but also all parties because it provided an opportunity to see actual activities and give real meaning to the strategies (WCP). The meeting also provided an excellent forum to status the participants' positions, for example, on the review of WAP documents, additional correlations needed, etc.

The most significant actions for followup include:

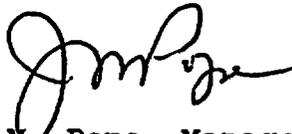
- 1) The linkage between performance allocations in the WAPS and the performance assessment in the SCP needs to be established. What is planned to support Producer radioactive vitrification process startup (schedules) needs to be articulated very soon.
- 2) The WAP documents to be reviewed by the NRC requires resolution.
- 3) WVDP will work with OCRWM-QA to arrange a Quality Assurance vitrification process surveillance with NRC involvement during Spring-Summer, 1990.
- 4) A meeting between DOE OCRWM, etc. (including the producers) and EPA should be arranged to clarify their requirements on the HLW form.

Dr. W. W. Bixby

-7-

- 5) A Materials Steering Committee Meeting, followed by a Waste Acceptance Process Meeting, is needed to discuss and assign the actions cited herein.

Very truly yours,



J. M. Pope, Manager
Process Technology and Testing
West Valley Nuclear Services Co., Inc.

JMP:lln

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Attachments: (1) Agenda
(2) List of Attendees
(3) PCP Activity-Logic Network

cc: Mr. P. Adams - NRC/Precision Analytical
Mr. J. Bunting - NRC/DHLW
Mr. C. Conner - DOE/RW
Mr. C. Enos - DOE/ID
Mr. T. Gutmann - DOE/RW-3
Mr. J. Hale - DOE/OCRWM
Mr. K. Hall - DOE/SR
Mr. S. Harbison - NYSERDA
Mr. D. Hurt - NRC/IMNS
Mr. P. LaMont - DOE/RL-HWVP
Mr. M. Lee - NRC/DHLW
Ms. D. Lege - BDMI/DP-12 Support
Mr. F. Lorey - NYSERDA
Mr. C. Macaluso - DOE/HQ-OCRWM
Mr. E. Maestas - DOE/WVPO
Mr. H. Manaktala - CNWRA
Mr. T. McIntosh - DOE/HQ-NE
Mr. E. Regnier - DOE/HQ-OCRWM
Mr. T. Rowland - DOE/WVPO
Mr. J. Schiffgens - NRC/IMNS
Mr. A. Schneider - NYSERDA/GA Tech
Mr. D. Shelor - DOE/RW-3
Mr. A. Spooner - WESTON
Mr. W. Stringfield - DOE/HQ-RW
Mr. J. Swift - NRC/IMNS
Mr. S. Vogler - DOE/ANL-MIO
Mr. R. Weller - NRC/HLWM
Mr. W. Wrzesinski - DOE/RL/HWVP

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WEST VALLEY DEMONSTRATION PROJECT

FINAL AGENDA FOR SF-12 VITRIFICATION RUN EXTERNAL REVIEW

OCTOBER 31, 1989

Conference Room B & C

| | | |
|---------------|--|--------------------------------------|
| 8:30 - 9:00 | Welcome/Introduction Statement Of Meeting Objectives Agenda Of Activities | W. Bixby E. Maestas E. Maestas |
| 9:00 - 9:30 | HLW Processing | J. Buggy |
| 9:30 - 10:15 | Run Strategy To Meet WAPS: Good Feed, Correct Temperature, Good Glass - Future Verification Testing | J. Pope |
| 10:15 - 10:30 | Break | |
| 10:30 - 11:00 | Establishing Acceptable Target Glass | Catholic University of America |
| 11:00 - 11:30 | Simulated Waste And Glass Former Slurry Verification | Pacific Northwest Laboratories |
| 11:30 - 12:00 | Results From Testing To Support Compliance Strategy | S. Barnes |
| 12:00 - 12:30 | Product Control | Savannah River |
| 12:30 - 1:15 | Lunch On Site | |
| 1:15 - 1:45 | Work Control To NQA-1 & OGR/B-14 | D. Shugars |
| 1:45 - 3:30 | Site Tour STS, Drum Cell, Vit and Analytical Laboratory | E. Maestas J. Pope |
| 3:30 - 4:00 | Matrix Of Activities And Products For Review To Show Compliance | J. Pope |
| 4:00 - 4:30 | Discussion Plans For Review Activities | All |

AGENDA FOR SF-12 VITRIFICATION RUN EXTERNAL REVIEW WORKING GROUP

NOVEMBER 1, 1989

Conference Room B & C

| | | |
|---------------|---|-----------------------|
| 8:30 - 9:00 | Finalization of Working Group Makeup; Detailed Review Activities | E. Maestas J. Pope |
| 9:00 - 9:30 | Documentation | D. Shugars |
| 9:30 - 10:00 | Test Control (e.g., Melter Temperature) | P. Klanian |
| 10:00 - 10:45 | Process Characterization (e.g. Feed Preparation) | K. Routt |
| 10:45 - 11:30 | Product Meeting WAPS | P. Macedo |
| 11:30 - 12:15 | Analytical Chemistry | C. McVay |
| 12:15 - 1:15 | Lunch On Site | |
| 1:15 - 2:15 | Detailed Vitrification Process Visit | S. Barnes |
| 2:15 - 5:00 | Start Verification By Review Groups | All |

AGENDA FOR SF-12 VITRIFICATION RUN EXTERNAL REVIEW WORKING GROUP

NOVEMBER 2, 1989

Conference Room A & B

| | | |
|---------------|--|-----------|
| 8:30 - 10:30 | Teams Meet With Counterparts To Continue Verification Activities | All |
| | - Field Review Of Work Versus Procedures | |
| 10:30 - 12:00 | Individual Interviews | All Teams |
| 12:00 - 1:00 | Lunch On Site | |
| 1:00 - 1:30 | Teams Caucus To Prepare Review Summary For Typing | All Teams |
| 1:30 - 2:30 | Presentation Of Summary Conclusions To WVDP | All |
| | - Discussion | |
| 2:30 - 3:00 | Formulate Minutes For Agreement | WVNS |
| 3:00 - 4:00 | Wrap-up | All |
| | - Minutes Agreements | |
| | - Future Actions | |
| | Depart Site | |

SF-12 REVIEW PARTICIPANTS

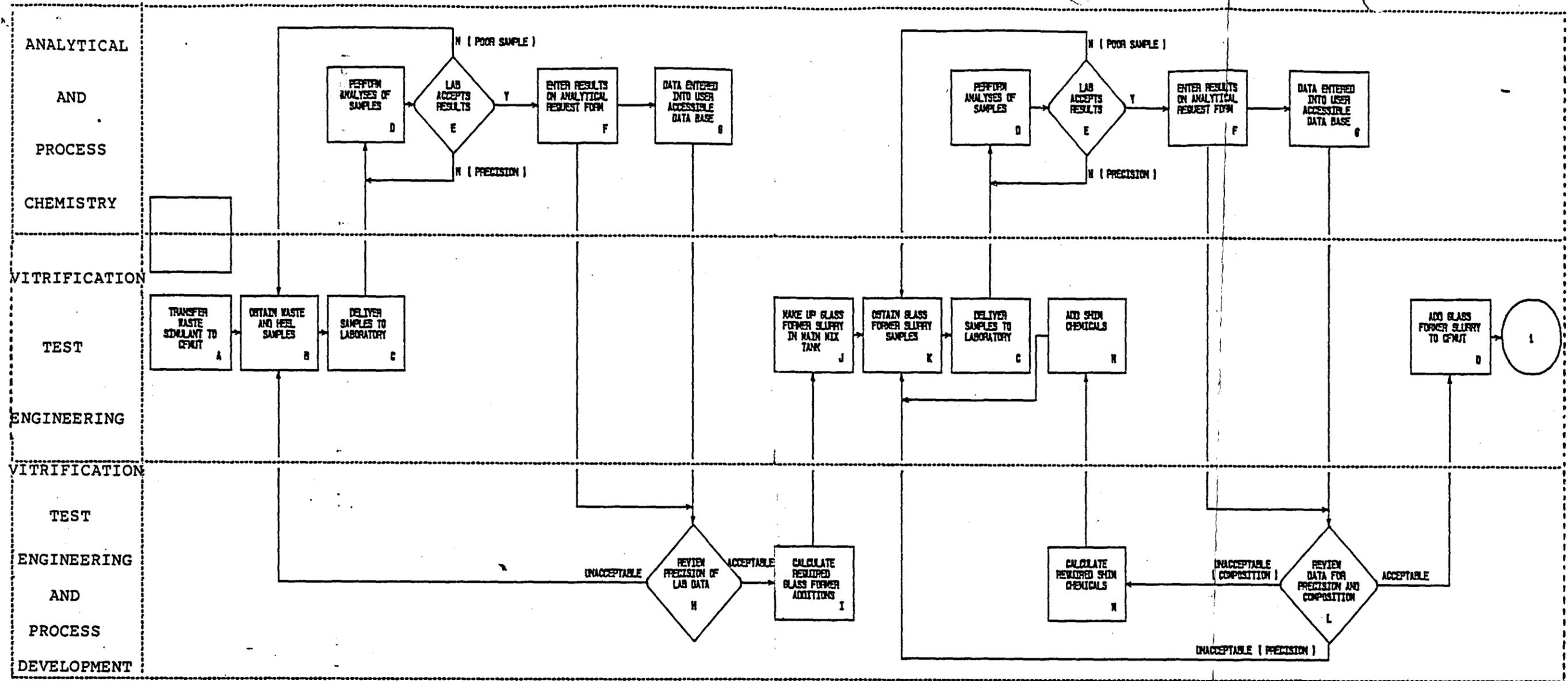
| <u>NAME</u> | <u>AFFILIATION</u> | <u>TELEPHONE NUMBER</u> |
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| J. Schiffgens | NRC/HLW | (FTS)-492-1480 |
| D. Hurt | NRC/IMNS | (FTS)-492-0694 |
| J. Swift | NRC/IMNS | (FTS)-492-0609 |
| D. Lege | BDMT/DP-12 Support | (301)-353-0044 |
| P. LaMont | DOE-RL/HWVP | (FTS)-444-6117 |
| W. Wrzesinski | DOE-RL/HWVP | (FTS)-444-6751 |
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| K. Hall | DOE-SR | (803)-557-1067 |
| T. Gutmann | DOE/RW-3 | (FTS)-896-1715 |
| P. Macedo | CUA/VSL | (202)-635-5327 |
| H. Manaktala | CNWRA | (512)-522-5210 |
| S. Harbison | NYSERDA | (716)-942-4378 |
| W. Ross | PNL | (FTS)-444-3644 |
| A. Schneider | GA TECH (NYSERDA) | (404)-894-3725 |
| P. Adam | PRECISION ANALYTICAL (NRC REP) | (607)-535-9314 |
| E. Maestas | DOE/WVPO | (716)-942-4314 |
| N. Chapman | SRS-DWPF | (803)-557-2580 |
| T. McIntosh | DOE-HQ-NE | (301)-353-3589 |
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| M. Plodinec | SRS/SRL | (FTS)-239-2170 |
| P. Allen | SRS/SRL | (FTS)-239-2541 |
| S. Vogler | ANL-MIO | (FTS)-972-6497 |
| J. Bunting | NRC/DHLW | (301)-492-3396 |
| A. Spooner | WESTON | (202)-646-6668 |
| M. Lee | NRC/DHLW | (301)-492-0421 |
| R. Weller | NRC/HLWM | (301)-492-3458 |
| C. McVay | WVNS/LABS | (716)-942-4584 |
| D. Shugars | WVNS/QA | (716)-942-4827 |
| D. Dempster | WVNS/QA | (716)-942-4775 |
| C. Conner | DOE/RW | (FTS)-896-4465 |
| D. Eggett | PNL | (509)-946-4835 |
| B. Pulsipher | PNL | (509)-375-3989 |
| J. Buggy | WVNS | (716)-942-4200 |
| J. Dempster | WVNS | (716)-942-4915 |
| D. McIntosh | SRL | (803)-725-3113 |

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Attachment 2 (Cont)

| <u>NAME</u> | <u>AFFILIATION</u> | <u>TELEPHONE NUMBER</u> |
|--------------|-----------------------|-------------------------|
| W. Bixby | DOE/WVPO | (716)-942-4312 |
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| R. Palmer | WVNS | (716)-942-4934 |
| T. Rowland | DOE/WVPO | (FTS)-473-4387 |
| O. Kruger | WHC/PROCESS TECH HWVP | (509)-376-2449 |
| C. Enos | DOE-ID | (FTS)-583-0108 |
| S. Barnes | WVNS | (FTS)-473-4480 |
| K. Routt | WVNS | (716)-942-4863 |
| P. Klanian | WVNS | (716)-942-4382 |
| J. Henderson | WHC/HWVP | (FTS)-444-3257 |

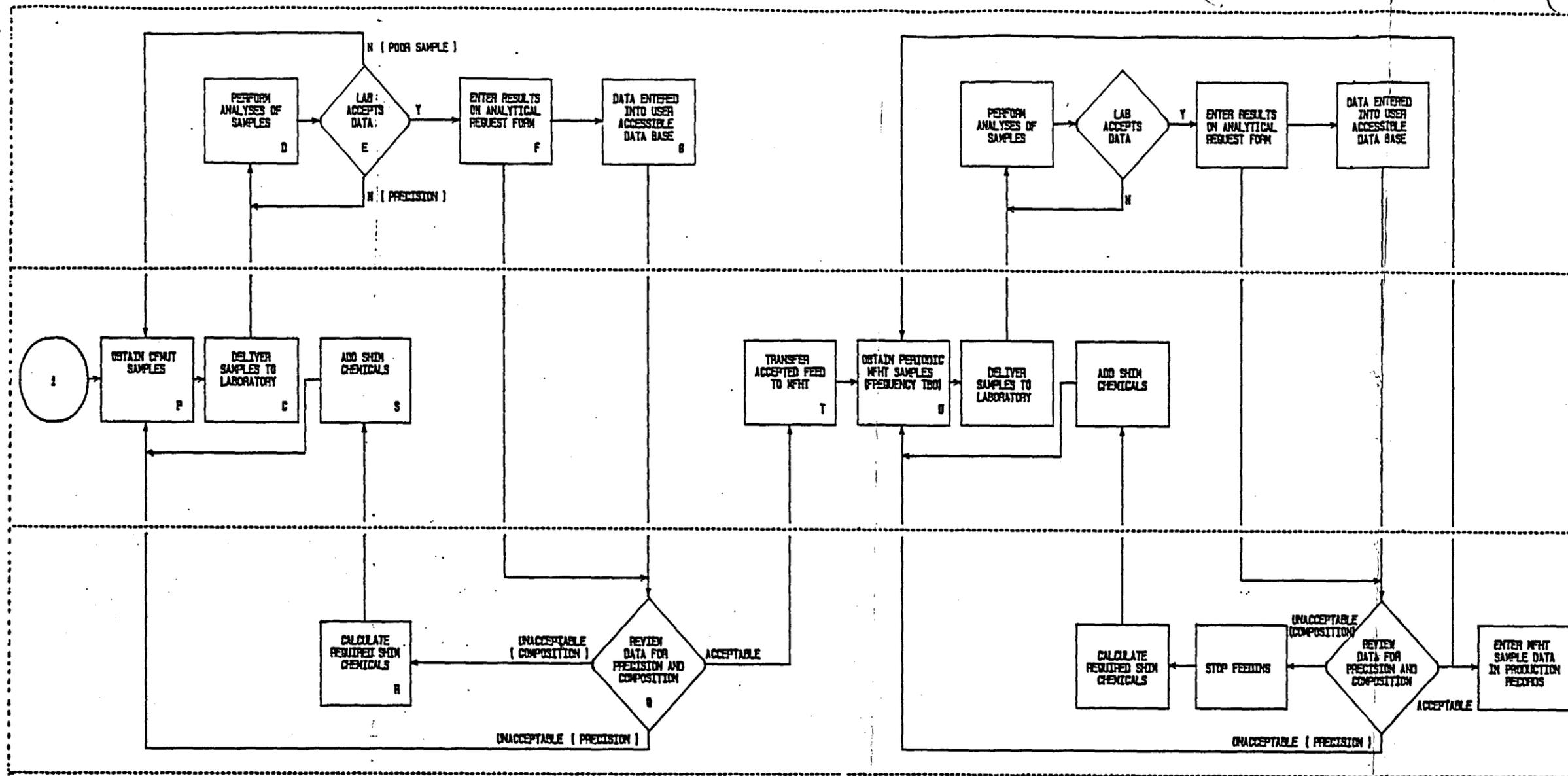
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| | ACTIVITY A | ACTIVITY B | ACTIVITY C | ACTIVITY D | ACTIVITY E | ACTIVITY F | ACTIVITY G | ACTIVITY H | ACTIVITY I | ACTIVITY J | ACTIVITY K | ACTIVITY L | ACTIVITY M | ACTIVITY N | ACTIVITY O | ACTIVITY P | ACTIVITY Q | ACTIVITY R | ACTIVITY S | ACTIVITY T | ACTIVITY U | REMAINING ACTIVITIES |
|---|----------------------------|--|--------------------|------------|------------|------------|------------------|------------------|----------------------------|--|-------------------|------------|------------|--|---|---------------------|-------------------|------------------------------|--|------------|------------|----------------------|
| SOP 63-20, "VITRIFICATION FEED PREPARATION" | SECTIONS 8.2.1 8.2.2 | SECTION 8.2.3 — APPENDIX A | SECTION 8.2.4.1 | | | | SECTION 8.2.5 | SECTION 8.2.6 | SECTIONS 8.2.7 8.2.8 | SECTION 8.2.9 — APPENDIX A | SECTION 8.2.11 | | | SECTIONS 8.2.7 8.2.12 APPENDIX A | SECTION 8.2.15 — APPENDIX A | SECTION 8.2.18.1 | SECTION 8.2.20 | SECTIONS 8.2.21 8.2.22 | SECTION 8.2.23 | | | |
| WORK ORDER #2375, "TRANSFER CTS SOLUTIONS TO PROPER TANKS FOR BOILING" | STEP 7 | | | | | | | | | | | | | | | | | | | | | |
| WORK ORDER #2608, "PREPARE SAMPLE AND TRANSFER GLASS FORMER SOLUTIONS" | FIELD CHANGE | | | | | | | | STEPS 1 - 15 | STEP 16 | | | | FIELD CHANGE | | | | | | | | |
| WVMS ANALYTICAL AND PROCESS CHEMISTRY LABORATORY QUALITY ASSURANCE PROGRAM MANUAL | | | | ACP 8.1 | ACP 8.1 | ACP 8.1 | ACP 8.1 | | | | | | | | | | | | | | | |
| WVMS SOFTWARE CONTROL PROGRAM, EP-3-103 THROUGH EP-3-019 | | | | | | | ALL SECTIONS | | | | ALL SECTIONS | | | | | ALL SECTIONS | | | | | | |
| EP-3-021, "PREPARATION AND REVIEW OF ENGINEERING CALCULATIONS" | | | | | | | ALL SECTIONS | | | | ALL SECTIONS | | | | | ALL SECTIONS | | | | | | |
| WVMS-TP-018, "TEST PROCEDURE FOR VITRIFICATION QUALIFICATION RUN II" | | | | | | | | | | | | | | | | | | SECTION 8.11 | SECTIONS 8.8.1 8.8.3 8.8.4.1 TABLE 8 | | | |
| WVMS-WCP-001, "WASTE COMPLIANCE PLAN FOR THE WEST VALLEY DEMONSTRATION PROJECT HIGH LEVEL WASTE FORM" | | | | | | | | | | | | | | | | | | | | | | SECTION 1.1.2 |

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SURVEILLANCE DOCUMENTS FOR FEED COMPOSITION CONTROL ACTIVITIES

ACTIVITY A: TRANSFER WASTE SIMULANT TO CFMUT

REFERENCE:

- 1) SOP 63-20, "Vitrification Feed Preparation" (SOP 63-20), Sections 6.2.1 and 6.2.2, page 5
- 2) WO 9376, step 7, page 3
- 3) WO 9608, Field Change

DOCUMENTATION:

- 1) Completed work orders #9376 and #9608

DOCUMENT LOCATION:

Prior to completion, work orders are maintained by Vitrification Test Engineering. Following completion, they are maintained by the Site Support Department for eventual transfer to MRC.

ACTIVITY B: OBTAIN WASTE AND HEEL SAMPLES FROM CFMUT

REFERENCE:

- 1) SOP 63-20, Section 6.2.3, page 5
- 2) SOP 63-20, Appendix A, page 10

DOCUMENTATION:

- 1) Sample labels per Appendix A, Section 2.6
- 2) Vitrification Operations Sampling Log Book

DOCUMENT LOCATION:

- 1) The labels are attached to the samples and delivered to Vitrification Test Engineering.
- 2) 110 Level of CTS

ACTIVITY C: DELIVER SAMPLES TO LABORATORY

REFERENCE:

- 1) SOP 63-20, section 6.2.4.1

DOCUMENTATION:

- 1) Completed Analytical Request Form

DOCUMENT LOCATION:

Transferred to the Analytical Chemistry Laboratory with the sample.

ACTIVITIES D - G: LABORATORY ANALYSIS AND DOCUMENTATION

REFERENCE:

- 1) WVNS Analytical and Process Chemistry Laboratory Quality Assurance Program Manual

DOCUMENTATION:

- 1) To be supplied by Analytical and Process Chemistry

ACTIVITY H: REVIEW LAB DATA FOR PRECISION

REFERENCE:

- 1) SOP 63-20, section 6.2.5, page 5
- 2) WVNS Software Control Program, EP-3-013 through EP-3-018

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, Page 15, step 6.2.5
- 2) All documentation required by the Software Control Program for the specific software package

DOCUMENT LOCATION:

- 1) Vitrification Test Engineering has custody of the data sheet until its completed. Following run completion, it's sent to MRC with the rest of the run documentation.
- 2) All documentation for a specific package is maintained by the Code Custodian. In addition, the permanent documentation package, as described in EP-3-016, "Software Configuration Management", is maintained by Records Management.

ACTIVITY I: CALCULATE GLASS FORMER ADDITIONS

REFERENCE:

- 1) SOP 63-20, section 6.2.6, page 6
- 2) EP-3-021, "Preparation and Review of Engineering Calculations"

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, page 15, step 6.2.6
- 2) Calculations properly formatted and checked per EP-3-021

DOCUMENT LOCATION:

- 1) Same as Activity H.
- 2) There are currently no calculations checked per EP-3-021 as this procedure is not yet issued. Following issuance, documents will be maintained per the procedure.

ACTIVITY J: MAKE UP GLASS FORMER SLURRY IN MMT

REFERENCE:

- 1) SOP 63-20, sections 6.2.7 and 6.2.8, page 6
- 2) WO 9608, steps 1 through 15

DOCUMENTATION:

- 1) Completed work order #9608

DOCUMENT LOCATION:

Prior to completion, work orders are maintained by Vitrification Test Engineering. Following completion, they are maintained by the Site Support Department for eventual transfer to MRC.

ACTIVITY K: OBTAIN GLASS FORMER SLURRY SAMPLES

REFERENCE:

- 1) WO 9608, step 16
- 2) SOP 63-20, section 6.2.9, page 6
- 3) SOP 63-20, Appendix A, page 10

DOCUMENTATION:

- 1) Completed work order #9608
- 2) Sample labels per Appendix A, Section 2.6
- 3) Vitrification Operations Sampling Log Book

DOCUMENT LOCATION:

- 1) Prior to completion, work orders are maintained by Vitrification Test Engineering. Following completion, they are maintained by the Site Support Department for transfer to MRC.

- 2) The labels are attached to the samples and delivered to Vitrification Test Engineering
- 3) 110 Level of CTS

ACTIVITY L: REVIEW LAB DATA FOR PRECISION AND COMPOSITION

REFERENCE:

- 1) SOP 63-20, section 6.2.11
- 2) WVNS Software Control Program, EP-3-013 through EP-3-018

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, Page 16, step 6.2.11
- 2) Same as Activity H

DOCUMENT LOCATION:

Same as Activity H.

ACTIVITY M: CALCULATE REQUIRED SHIM CHEMICALS

REFERENCE:

- 1) Activity I: the same method used to calculate glass former initially is used to calculate required shim chemicals
- 2) EP-3-021, "Preparation and Review of Engineering Calculations"

DOCUMENTATION:

Same as Activity I

DOCUMENT LOCATION:

Same as Activity I

ACTIVITY N: ADD SHIM CHEMICALS

REFERENCE:

This activity is controlled by means of a new work order or a field change to work order #9608 written in the event shim chemicals are required for the glass former slurry.

DOCUMENTATION:

- 1) Completed work order #9608 or a separate work order with the number to be determined when it is written.

DOCUMENT LOCATION:

Same as Activity A.

ACTIVITY O: ADD GLASS FORMER SLURRY TO CFMUT

REFERENCE:

- 1) SOP 63-20, sections 6.2.7 and 6.2.12
- 2) WO 9608, steps 17 and 18

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, page 16, step 6.2.11
- 2) Completed work order #9608

DOCUMENT LOCATION:

- 1) Same as Activity H
- 2) Same as Activity A

ACTIVITY P: OBTAIN CFMUT SAMPLES

REFERENCE:

- 1) SOP 63-20, Section 6.2.15, page 7
- 2) SOP 63-20, Appendix A, page 10

DOCUMENTATION:

Same as Activity B

DOCUMENT LOCATION:

Same as Activity B

ACTIVITY Q: REVIEW LAB DATA FOR PRECISION AND COMPOSITION

REFERENCE:

- 1) SOP 63-20, section 6.2.18.1, page 8
- 2) Same as Activity H

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, Page 16, step 6.2.18.1
- 2) Same as Activity H

DOCUMENT LOCATION:

Same as Activity H

ACTIVITY R: CALCULATE REQUIRED SHIM CHEMICALS

REFERENCE:

- 1) SOP 63-20, section 6.2.20, page 8
- 2) Same as Activity I

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, Page 17, step 6.2.20
- 2) Same as Activity I

DOCUMENT LOCATION:

Same as Activity I

ACTIVITY S: ADD SHIM CHEMICALS

REFERENCE:

- 1) SOP 63-20, Section 6.2.21 and 6.2.22, pages 8 and 9

DOCUMENTATION:

- 1) Completed work order from above reference

DOCUMENT LOCATION:

Same as Activity A

ACTIVITY T: TRANSFER ACCEPTED FEED TO MFHT

REFERENCE:

- 1) SOP 63-20, section 6.2.26
- 2) WVNS-TP-019, "Test Procedure for Vitrification Qualification Run II" (Test Procedure), section 8.11, page 131

DOCUMENTATION:

- 1) SOP 63-20 Data Sign Off Sheet, page 17, step 6.2.26
- 2) Signed off SF-12 Activity Diagram, TP-019, page 14

DOCUMENT LOCATION:

Same as Activity H: Document 1

ACTIVITY U: OBTAIN PERIODIC MFHT SAMPLES (FREQUENCY TBD)

REFERENCE:

- 1) Test Procedure, sections 8.8.1, 8.8.3, and 8.8.4.1, page 123-129
- 2) Test Procedure, Table 8, page 124

DOCUMENTATION:

- 1) Sample labels per section 8.8.3.4 of the Test Procedure
- 2) Vitrification Operations Sampling Log Book

DOCUMENT LOCATION:

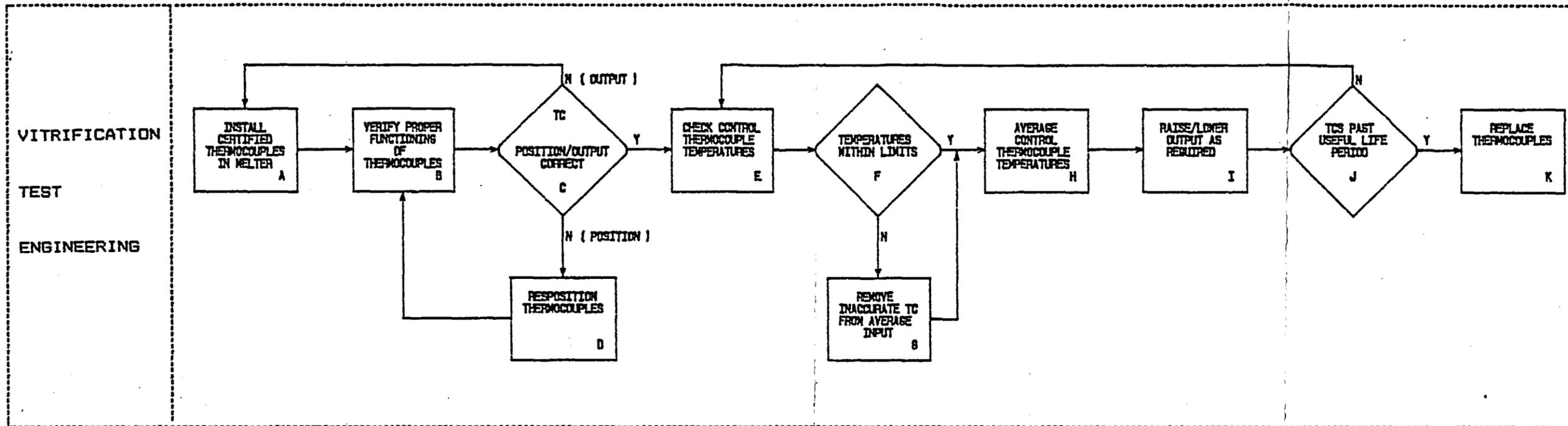
- 1) The labels are attached to the samples for delivery to the analytical lab.
- 2) 110 level of CTS

The remaining activities on this chart are in response to WVNS-WCP-001, Waste Compliance Plan for the West Valley Demonstration Project High Level Waste Form, Rev. 1, Section 1.1.2, page 9-12. During qualification testing, sampling will be done on the MFHT to verify feed composition and determine the frequency of sampling that will be required in Hot Operations. During the testing phase of the project, immediate analyses are not performed on these samples. Thus, the loop containing these activities represents the mode of operation during production. The documentation produced, i.e. the analytical results will be included with the production records for the canisters.

RESPONSIBLE

MELTER TEMPERATURE CONTROL ELEMENTS

ORGANIZATION



CONTROL ACTIVITIES

All Temperature Control Activities

APPLICABLE DOCUMENTS

1. WVNS-TP-019, "Test Procedure SF-12 Vitrification Qualification Run II"

WVNS POINT OF CONTACT

P. S. Klanian

SI APERTURE CARD

Also Available On Aperture Card

8911280105-04

SURVEILLANCE DOCUMENTS FOR MELTER TEMPERATURE CONTROL ACTIVITIES

ACTIVITY A: Install certified thermocouples

DOCUMENTATION:

- 1) Certificate of compliance for type K and type N thermocouples. All of these types of thermocouples are purchased with a required certificate of compliance, therefore any one of them is considered certified, without having to trace individual thermocouples to specific purchase orders.

ACTIVITY B: Verify functioning of installed thermocouples

REFERENCE:

- 1) WVNS-TP-019, "Test Procedure for Vitrification Qualification Run II" (Test Procedure), Section 5.4.1, page 20
- 2) Test Procedure, Section 10.2, page 143
- 3) Test Procedure, Appendix B, page AP-B-1
- 4) Test Procedure, Section 7.7.3, page 76

DOCUMENTATION:

- 1) Completed, dated, and initialed instrument list
- 2) Completed Final System Preparations Check List

DOCUMENT LOCATION:

For both 1 and 2: the documents for the current run are located in the control room. The same documents for previous runs are maintained in a locked file cabinet by Vitrification Test Engineering with final disposition to MRC.

ACTIVITIES C AND D:

REFERENCE:

- 1) Test Procedure, Section 7.7.3, page 76

DOCUMENTATION:

- 1) Completed Final System Preparations Check List

DOCUMENT LOCATION:

Same as for Activity A.

ACTIVITIES E.F.G.H. AND I:

REFERENCE:

- 1) Test Procedure, Section 7.1.4, page 53
- 2) (For activity G only): Test Procedure, Appendix D, page AP-D-1, item I.B.2
- 3) (For activity H only): Test Procedure, Appendix D, page AP-D-1, item I.B.1

DOCUMENTATION:

- 1) Completed Melter Preparation Checklist
- 2) Hourly Process Logs

DOCUMENT LOCATION:

1. Documents for the current run are located in the control room. Documents for previous runs are maintained in a locked file cabinet by Vitrification Test Engineering.
2. Current process logs are located in the control room. Logs for previous runs are maintained in binders by Vitrification Process Development.

ACTIVITIES J AND K:

REFERENCE:

- 1) Test Procedure, Appendix D, Page AP-D-1, items I.A.3 and I.A.4
- 2) Test Procedure, Appendix D, Page AP-D-2, items I.D.1.a, I.D.1.b, I.D.1.c, and I.D.1.d

DOCUMENTATION:

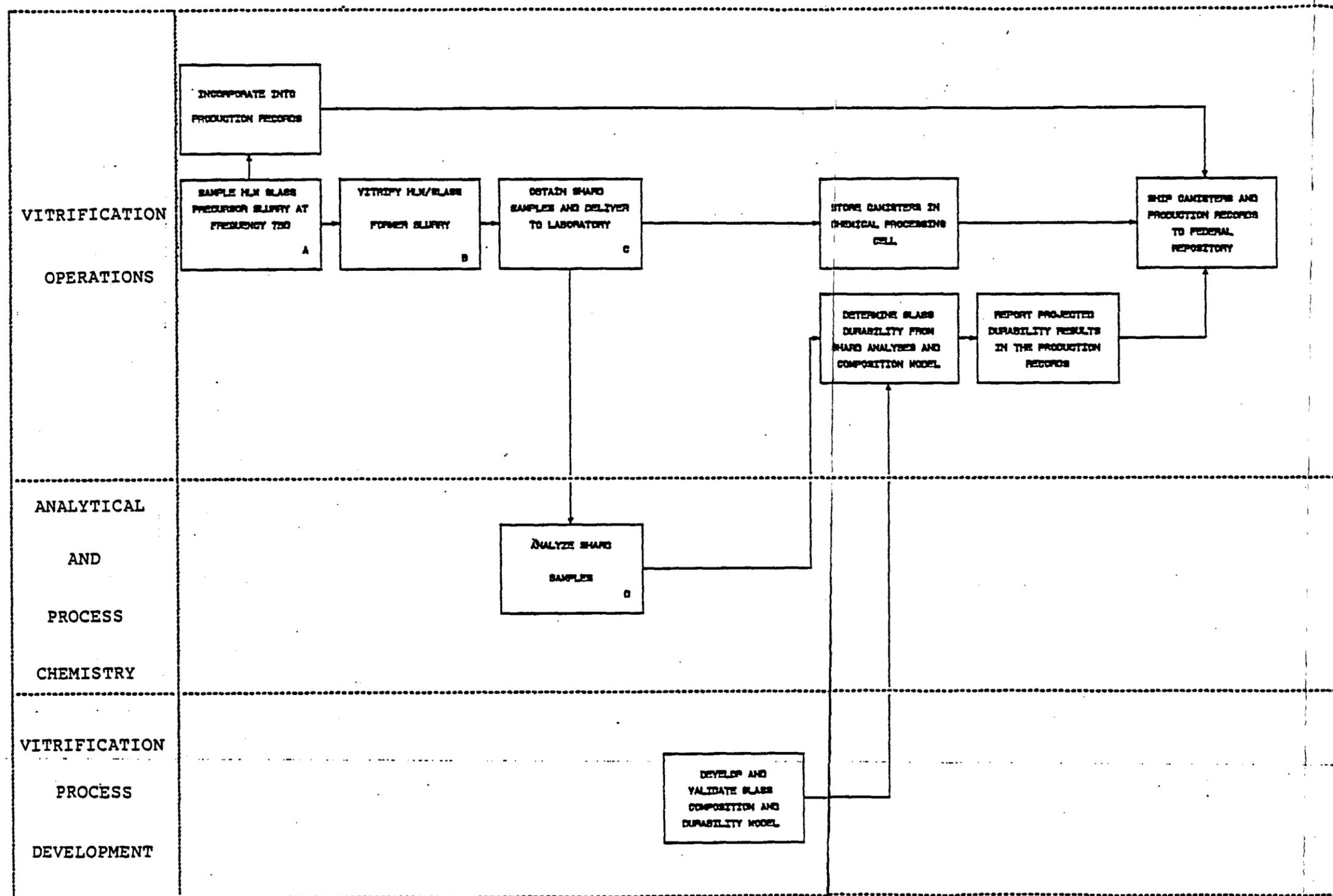
- 1) Temperature profiles comparing temperature readings from nozzle R1 to temperature readings from nozzle R2.

DOCUMENT LOCATION:

This requirement was only instituted at the beginning of SF-12, so there are no documents of this sort from previous runs. The current documents are maintained by Vitrification Test Engineering.

RESPONSIBLE ORGANIZATION

GLASS COMPOSITION CONTROL ELEMENTS



SI APERTURE CARD

Also Available On Aperture Card

8911280105-05

SURVEILLANCE DOCUMENTS FOR GLASS COMPOSITION CONTROL ACTIVITIES

ACTIVITY A: SAMPLE HLW GLASS PRECURSOR SLURRY

REFERENCE:

This activity refers to the sampling of feed and is controlled by those documents referenced in the Feed Composition Control flow chart and accompanying document lists.

ACTIVITY B: VITRIFY HLW/GLASS FORMER SLURRY

REFERENCE:

This activity also refers to the flow chart describing melter feed activities and is controlled by those documents referenced therein.

ACTIVITY C: OBTAIN SHARD SAMPLES AND DELIVER TO LABORATORY

REFERENCE:

- 1) WVNS-TP-019, "Test Procedure for SF-12 Vitrification Qualification Run II" (Test Procedure), Section 6.2.3, page 33 and section 8.8, page 123-129

DOCUMENTATION:

- 1) Sample labels and Analytical Request Forms
- 2) Vitrification Operations Sampling Log Book
- 3) Vitrification Operations Log Book

DOCUMENT LOCATION:

- 1) The labels are attached to the samples and delivered to the Analytical and Process Laboratory with the Analytical Request Forms
- 2) 110 level of CTS
- 3) Control Room of CTS

ACTIVITY D: ANALYZE SHARD SAMPLES

REFERENCE:

- 1) WVNS Analytical and Process Chemistry Laboratory Quality Assurance Program Manual

DOCUMENTATION:

- 1) To be supplied by Analytical and Process Chemistry

The remaining activities on this chart are in response to WVNS-WCP-001, "Waste Compliance Plan for the West Valley Demonstration Project High Level Waste Form, REv. 1, Section 1.1.2, page 9-12.

During Production Operations, shard sampling of the waste form will be performed at a frequency determined by the results of analyses of data gathered during the qualification program and during cold operations. The documentation produced, i.e., the projected durability of the waste form, will be included in the production records for the canisters.