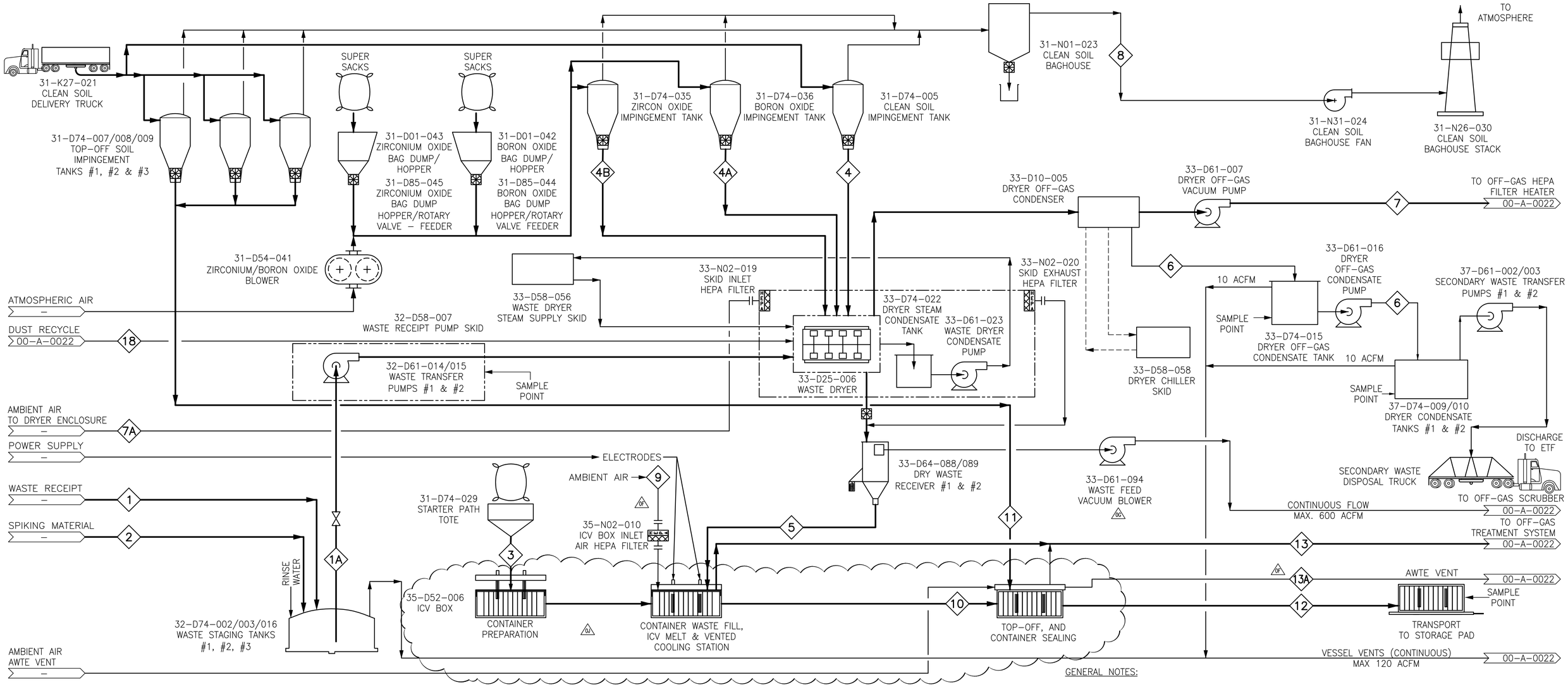

STREAM No.		1	2	1A	3	4	4A	4B	5	6	7	7A	8	9	10	11	12	13	13A	18
STREAM NAME	UNITS	WASTE RECEIPT	SPIKING FLOW	WASTE FLOW	STARTER PATHS	SOIL	B2O3 ADDITION	ZrO2 ADDITION	ICV FEED	DRYER CONDENSATE	DRYER AIR	DRYER VENT AIR	OFF GAS AIR	ICV AIR	HOT ICV PRODUCT	TOP UP SOIL	COOLED ICV PRODUCT	ICV OFF GAS	AWTE VENT AIR	DUST RECYCLE
PHASE		LIQUID	LIQUID	LIQUID	SOLID	SOLID	SOLID	SOLID	SOLID	LIQUID	GAS	GAS	GAS	GAS	SOLID	SOLID	SOLID	GAS	GAS	SOLID
CONTINUOUS MASS FLOWRATE	lb/hr	703		703	16	329	23.3	32.6	614	480	13	2566	851	350	467	66	467	513	350	5
CONT. VOL. FLOW RATE (LIQ/GAS)	GPM/ACFM	1.09		1.09						0.98	4.2	600	199	80				280	80	
BATCH VOLUME	USG/ACF	1646		1646						1483	2027	7236000	2400000	962168				3382386	962168	
BATCH MASS	lb	17671		17671	3300	8272	586	820	15420	12055	6345	515859	171097	70323	93769	13315	93769	103209	70323	125
BATCH TRANSFER TIME	Hr	1.14		1.14	0.5	0.25	0.25	0.25	1	8	8	201	5	139	201	4	201	139	139	139
BATCH VOLUME FLOW	USGPM/ACFM	24		24						3.1	13	600	1000	115				406	115	
BATCH MASS FLOW	lb/hr	15458		15458	6600	33088	2344	3281	15420	1507	42	2566	4277	506	467	3329	467	743	506	7.2
DESIGN FACTOR	DIMENSIONLESS	1		1	1	1	1	1	1	1.1	1	1	1	1	1	1	1	1	1	1
DESIGN VOLUME FLOW	USGPM/ACFM	24		24						3.4	13	600	1000	115				406	115	
DESIGN MASS FLOW	lb/hr	15458		15458	6600	33088	2344	3281	15420	1658	42	2566	4277	506	467	3329	467	743	506	7.2
SpG		1.29		1.29	2.32	2.40	1.51	5.70	2.09	0.98	0.001	0.001	0.001	0.001	2.65	2.40	2.7	0.0005	0.001	2.54
SpG (BULK SOLIDS ONLY)					1.50	1.43	1.03	1.96	1.49						2.65	1.43	2.7			1.50
PRESSURE	in. WG	n/a		n/a	n/a	n/a	n/a	n/a	n/a	n/a	-80.07			-2.24	n/a	n/a	n/a	-2.46	-2.57	n/a
TEMPERATURE	°F	82		82	77	77	77	77	83	122	212	77	77	77	2372	77	122	875	77	572
H2O LIQUID	lb/hr	469.5		469.5	0.41	16.5			6.1	479.8										
H2O GAS	lb/hr																	6.5		
FEED Na	lb/hr	62.6		62.6	0.2	6.5			70						69.2		69.2	0.7		0.7
SO2 GAS	ppmV																	1231		
NOx GAS	ppmV																	119238		
HCl GAS	ppmV																	119		
137Cs	Ci/hr	1.5E+00	0.0E+00	1.5E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00	0.0E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00	1.5E+00	0.0E+00	1.5E+00	1.5E-02	0.0E+00	1.5E-02
99Tc	Ci/hr	1.2E-02	0.0E+00	1.2E-02	0.0E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-02	0.0E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00	1.2E-02	0.0E+00	1.2E-02	6.2E-04	0.0E+00	6.2E-04
TRU	Ci/hr	9.0E-04	0.0E+00	9.0E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-04	0.0E+00	0.00E+00	0.0E+00	0.0E+00	0.0E+00	9.0E-04	0.0E+00	9.0E-04	9.0E-08	0.0E+00	9.0E-08
129I	Ci/hr	2.3E-05	0.0E+00	2.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	2.05E-05	2.05E-05	0.00E+00	0.0E+00	0.0E+00	0.0E+00	2.0E-06	0.0E+00	2.05E-06	1.84E-05	0.0E+00	1.84E-05

GENERAL NOTES:

1. SINGLE TRAIN FACILITY THROUGHPUT: PROCESS FEED IS MODELLED BASED ON A DESIGN FEED OF 1.09 GPM. A TOTAL OPERATING EFFICIENCY OF 70 % SHOULD BE APPLIED TO ACHIEVE A 0.76 GPM PRODUCTION RATE WITH A 20.0 WT % Na2O GLASS LOADING IN THE GLASS PRODUCT.

* 2. FLOW IN STREAM 2 IS VARIABLE; A TESTING MATRIX WILL DETERMINE THE AMOUNT AND COMPOSITION OF SPIKING MATERIAL TO BE ADDED IN THE INDIVIDUAL TESTS.

3. VALVES ARE ONLY SHOWN TO INDICATE PROCESS INTENT.

4. FEED DATA BASED ON SECTIONS 3.1.2.1.1.1 AND 3.1.2.1.1.2 IN RPP-17403 REV 2.

5. RADIONUCLIDE CONTENT WAS BASED ON TABLE 3-3 IN SECTION 3.1.2.1.1.3 OF RPP-17403 REV 2.

LINES LEGEND:

MAJOR PROCESS STREAM

MINOR PROCESS STREAM

INTERMITTENT FLOWS

Rev.	REVISION DESCRIPTION	Date	By	Chk'd	Approved Design Lead	Approved Proj Mgr
OJ	REMOVED PROPRIETARY BLOCK	15/SEPT/05	JBM			
OH	ISSUE FOR CH2 APPROVAL AND 90% REPORT	10 MAY 05	SB	TH	KN	TH
OG	ISSUED FOR CLIENT APPROVAL & 90% REPORT	24 MAR 05	RRB	RC	KN	TH
OF	ISSUED FOR CLIENT APPROVAL & 90% REPORT	15 MAR 05	SB	RC	KN	TH
OE	ISSUED FOR CLIENT APPROVAL & 90% REPORT	17 FEB 05	SB	LSG	KN	TH
OD	ISSUED FOR CLIENT APPROVAL & 90% REPORT	14 FEB 05	SB	LSG	KN	TH
OC	ISSUED FOR CLIENT APPROVAL & 90% REPORT	21 JAN 05	SB	LSG	KN	TH
OB	GENERAL REVISIONS, ISSUED FOR CLIENT COMMENT	16 DEC 04	SB	LSG	KN	TH
OA	GENERAL REVISIONS, ISSUED FOR INTERNAL REVIEW	15 NOV 04	SB	LSG	KN	TH
0	FOR CONSTRUCTION	20 AUG 04	SB	LSG	KN	TH
C	FORMERLY F-143643-00-A-0021, FOR APPROVAL	26 JULY 04	SB	LSG	KN	TH
B	FINAL ISSUE	14 APR 04	SG	LSG	KN	TH
A	ISSUED FOR CLIENT COMMENT	10 MAR 04	SLC		KN	TH

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AMEC DRAWING NO: F-145579-00-A-0021 REV: OJ

U.S. DEPARTMENT OF ENERGY
Office of River Protection

amec

FULL DBVS
FEED PREPARATION & MELT
PROCESS FLOW DIAGRAM

NAME	DATE	COMPANY
DRAWN BY		
DESIGNED BY		
CHECKED BY		
DESIGN / AREA LEAD		
ENGINEERING MANAGER		
PROJECT MANAGER		
DESIGN AUTHORITY		

SIZE F | BLDG NO | INDEX NO | DWG NO | REV
SCALE NTS | EDT | SHEET | OF

DRAWING TRACEABILITY LIST

DWG NO	TITLE	REF NUMBER	TITLE
–		–	

REFERENCES

NEXT USED ON

REVISIONS

REV REL	MFD	REV NO	DESCRIPTION	REV BY DATE	REV BY	CHECKED BY	ENGR	COMPANY
		–						

DWG NO F-145579-00-A-0021 REV OJ SH OF