

Figure 1.3-1 – Production Building Subfloor Plans Preliminary Arrangement

Security-Related Information – Withhold Under 10 CFR 2.390

Figure 1.3-2 – Production Building Floor Plans Preliminary Arrangement

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Figure 1.3-3 – Production Building Sections Preliminary Arrangement

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Figure 1.3-4 – SHINE Facility Site Layout

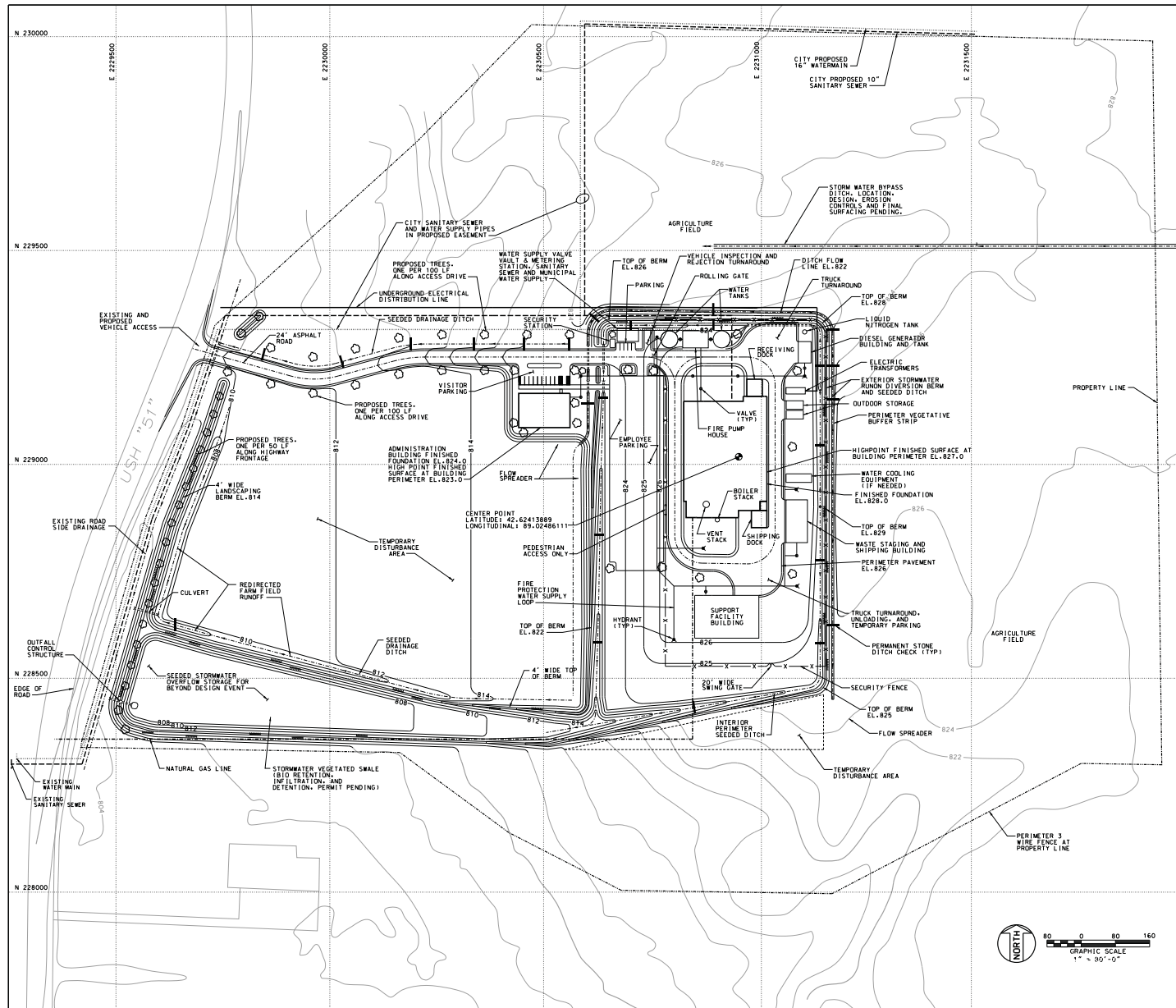
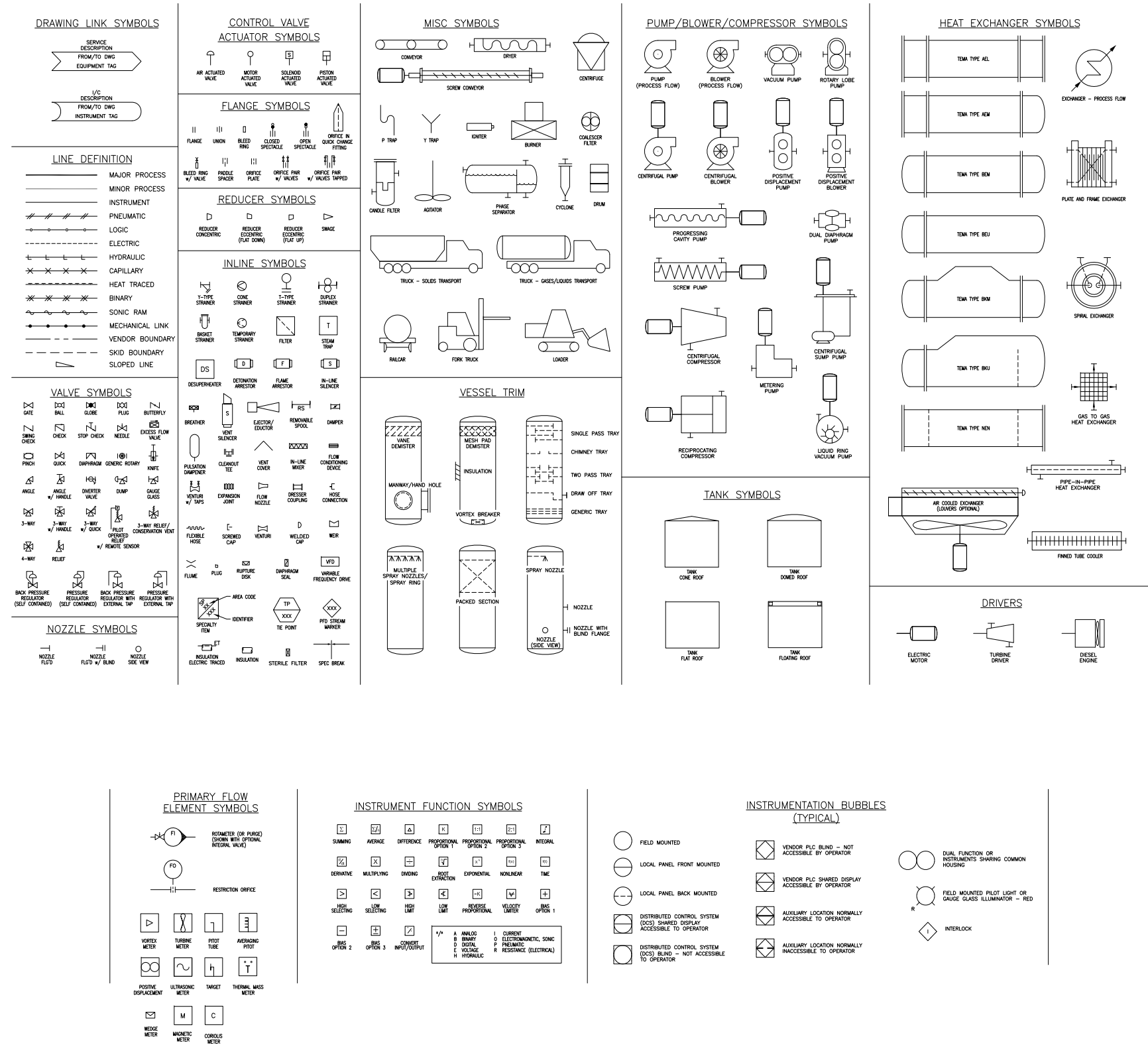


Figure 1.3-5 – RCA Boundaries

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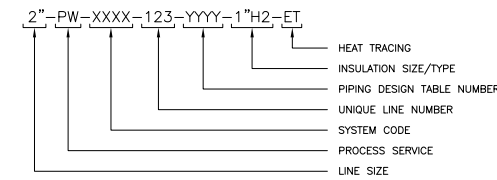
Figure 1.3-6 – Legend for Process Flow Diagrams (Sheet 1 of 2)



DRAWING SCALE
NTS

Figure 1.3-6 – Legend for Process Flow Diagrams (Sheet 2 of 2)

PIPING NUMBERING SYSTEM



PROCESS SERVICE IDENTIFICATION

Table listing process service abbreviations such as AIR, AMMONIUM HYDROXIDE, ATMOSPHERIC VENT, BREATHING AIR, BLOWDOWN, BOILER FEED WATER, CHEMICAL FEED (MISC.), CONDENSATE, COVER GAS, CHEMICAL SEWER, CHILLED WATER, CARBON DIOXIDE, COOLING WATER RETURN, COOLING WATER SUPPLY, DEMINERALIZED WATER, DRAIN, FLARE, FLUSHING FLUID, FUEL GAS, FIRE WATER, GLYCOL RETURN, GLYCOL SUPPLY, HYDROGEN, SANITARY SEWER, HOT FLUE GAS, HIGH PRESSURE STEAM, INSTRUMENT AIR, LUBE OIL, LIQUID NITROGEN, LOW PRESSURE STEAM, MEDIUM PRESSURE STEAM, NATURAL GAS, NITROGEN, CAUSTIC, AMMONIA, NITRIC ACID, OXYGEN, OILY WATER SEWER, PLANT AIR, PROCESS CONDENSATE, PROCESS GAS, POTASSIUM PERMANGANATE, POTABLE WATER, PROCESS WATER, RELIEF VENT, RADIOACTIVE LIQUID WASTE, SULFURIC ACID, STEAM CONDENSATE, UREX SOLVENT, SEAL OIL, SANITARY SEWER, STORM SEWER, TARGET SOLUTION, URANYL NITRATE, VACUUM, WASTE WATER.

ABBREVIATIONS

Table listing abbreviations for piping and equipment, including AG (ABOVE GROUND), ATM (ATMOSPHERE), BVP (BYPASS), CC (CHEMICAL CLEANOUT), CL (CENTERLINE), CO (CLEANOUT), CONN (CONNECTION), DES (DESIGN), D/P (DIFFERENTIAL PRESSURE), EL (ELEVATION), ESD (EMERGENCY SHUTDOWN), FDF (FACE OF FLANGE), FLG (FLANGE), FP (FULL PORT), FV (FULL VACUUM), GO (GEAR OPERATED), GR (GRADE), HC (HOSE CONNECTION), HH (HAND HOLE), HP (HIGH PRESSURE), IAS (INSTRUMENT AIR SUPPLY), ISBL (INSIDE BATTERY LIMITS), LP (LOW PRESSURE), MOC (MATERIALS OF CONSTRUCTION), NNF (NORMALLY NO FLOW), OSBL (OUTSIDE BATTERY LIMITS), OWH (OVERHEAD), R (RELOCATED), REOD (REQUIRED), SC (SAMPLE CONNECTION), SCH (SCHEDULE), SD (SHUTDOWN), SP (SPECIFIC GRAVITY), SET (SET POINT), SS (STAINLESS STEEL), STD (STANDARD), T/C (THERMOCOUPLE), TEMP (TEMPERATURE), THRO (THREADED), TL (TANGENT LINE), T/T (TANGENT TO TANGENT), TYP (TYPICAL), UG (UNDERGROUND), VF (VENDOR FURNISHED).

VALVE LIST KEY

Table mapping valve types to materials. 1st LETTER: V - VALVE. 2nd NO TYPE: 1 - BALL, 2 - CHECK, 3 - GATE, 4 - GLOBE, 5 - BUTTERFLY, 6 - PLUG, 7 - TRIPLE OFFSET. 3rd NO CLASS: 0 - 125, 1 - 150, 2 - 200, 3 - 300, 4 - 600, 5 - 800, 6 - 900, 7 - 1500. 4th NO END CONNECTION: 1 - SW, 2 - SW/BW, 3 - BW, 4 - BW/FLG, 5 - FLG, 6 - THREADED, 7 - LUGGED, 8 - NON-LUGGED, 9 - WAFER, 0 - SWxFLG. 5th NO MATERIAL: 1 - CAST IRON/DUCTILE IRON, 2 - LOW CARBON STEEL, 3 - STAINLESS, 4 - KILLED CARBON STEEL (MADE MRO175 COMPLIANT), 5 - LOW & INTERMEDIATE ALLOY STEEL.

ABBREVIATIONS FOR VALVES

Table mapping valve abbreviations to their states: FO - FAIL OPEN, FC - FAIL CLOSED, FL - FAIL IN LAST POSITION, FTV - FAIL TO VENT, CSO - CAR SEAL OPEN, CSC - CAR SEAL CLOSED, HPT - HIGH POINT, LPT - LOW POINT, LO - LOCK OPEN, LC - LOCK CLOSED, NO - NORMALLY OPEN, NC - NORMALLY CLOSED.

ABBREVIATIONS FOR HAND SWITCHES

Table mapping hand switch abbreviations: HOA - HAND OFF AUTOMATIC, F/R - FORWARD REVERSE, OCA - OPEN CLOSED AUTOMATIC, S/S - START/STOP AUTOMATIC.

ABBREVIATIONS FOR EQUIPMENT TAGS

Table listing equipment tag abbreviations: A - EXCHANGERS, CONDENSERS; B - (LATER); C - COMPRESSORS, BLOWERS, VACUUM PUMPS, FANS, EXHAUSTERS, REFRIGERATION UNITS AND THEIR DRIVES, GEARS, AND FLUID DRIVES; D - DEMINERALIZERS, ABSORBERS, CLARIFIERS, AIR DRYERS, EVAPORATORS, AERATORS, DECARBONATORS, AND DEGASIFIERS; E - ELECTRICAL EQUIPMENT (INCLUDING SWITCHGEAR, MOTOR CONTROL CENTERS, TRANSFORMERS, SWITCH BOARDS, ETC.); F - FILTERS, STRAINERS, PURIFIERS, CENTRIFUGES, AND SILENCERS; G - HANDLING EQUIPMENT, CRANES, HOISTS, AND DRIVERS; H - HUMIDIFICATION/DEHUMIDIFICATION EQUIPMENT; I - INSTRUMENT AND CONTROL BOARDS, PANELS, AND CABINETS; K - DIESEL GENERATORS, DIESEL ENGINES; M - PIPING SPECIALTIES (TRAPS, HOSES, EXPANSION JOINTS, RESTRICTION ORIFICES, ETC.); P - PUMPS AND THEIR DRIVES, GEARS, AND FLUID DRIVES; R - RACKS; S - SPECIAL PACKAGED ITEMS OR SYSTEMS; T - TANKS AND RESERVOIRS; V - VESSELS; X - MISCELLANEOUS AIR HANDLING DEVICES (INCLUDING AIR MIXING BOXES, DUCT SILENCERS, DAMPERS, ETC.); Y - (LATER); Z - MISCELLANEOUS EQUIPMENT.

INSULATION/HEAT TRACING

Table listing insulation and heat tracing abbreviations: AC - ACOUSTIC CONTROL INSULATION, CC - COLD SERVICE INSULATION, CJ - CHILLED FLUID JACKETED, CP - CONDENSATION CONTROL, CH - CHILLED FLUID TRACED, ET - ELECTRIC TRACED, FP - FIRE PROTECTION INSULATION, HC - HEAT CONSERVATION INSULATION, HJ - HOT FLUID JACKETED, HT - HOT FLUID TRACED, PF - PREVENTION FROM FREEZING INSULATION, PI - PERSONNEL PROTECTION INSULATION, PS - PROCESS STABILITY INSULATION, SJ - STEAM JACKETED, ST - STEAM TRACED.

INSTRUMENT IDENTIFICATION TABLE

Large table mapping instrument symbols to their components. Columns include SYMBOL, FIRST LETTER, MEASURING DEVICES, CONTROLLING DEVICES, ALARMS*, SWITCHES*, and MISC. Rows list various instrument types like ANALYZER, BURNER, CONDUCTIVITY, DENSITY, FLOW, LEVEL, MOISTURE, PRESSURE, QUANTITY, RADIOACTIVITY, SPEED, TEMPERATURE, VIBRATION, WEIGHT, SHUTDOWN, POSITION, etc. with their corresponding letter codes.