

US EPA ARCHIVE DOCUMENT

| | B | C |
|----|--------------------------------------|--|
| 1 | Source Description | |
| 2 | | |
| 3 | Phase I ID No. | 3004 |
| 4 | EPA ID No. | UT5210090002 |
| 5 | Facility Name | TOCDF Desert Army Depot (Tooele Army Depot South) |
| 6 | Facility Location | |
| 7 | City | Tooele |
| 8 | State | UT |
| 9 | Unit ID Name/No. | Metals Parts Furnace |
| 10 | Other Sister Facilities | |
| 11 | Number of Sister Facilities | 0 |
| 12 | Combustor Class | Onsite incinerator, DoD government, chem demil |
| 13 | Combustor Type | Roller hearth |
| 14 | Combustor Characteristics | 2 combustion chamber, roller hearth Air lock, primary combustion chamber (with zones 1 & 2), secondary combustion chamber |
| 15 | | |
| 16 | Capacity (MMBtu/hr) | |
| 17 | Soot Blowing | |
| 18 | APCS Detailed Acronym | WQ/VS/PBS/DM |
| 19 | APCS General Class | WQ, HEWS, LEWS |
| 20 | APCS Characteristics | Quench tower, venturi scrubber, packed bed scrubber, demister |
| 21 | Hazardous Wastes | Liq, solid (Solid wastes with residual liquid chemical agent (container heel)) |
| 22 | Haz Waste Description | Chemical agent VX |
| 23 | Supplemental Fuel | Natural gas |
| 24 | | |
| 25 | Stack Characteristics | |
| 26 | Diameter (ft) | 2.00 |
| 27 | Height (ft) | 70 |
| 28 | Gas Velocity (ft/sec) | 54 |
| 29 | Gas Temperature (°F) | 218 |
| 30 | | |
| 31 | Permitting Status | |
| 32 | HWC Burn Status (Date if Terminated) | |

| | B | C |
|----|------------------------------|---|
| 1 | Condition Description | |
| 2 | | |
| 3 | 3004C1 | 3004C1 |
| 4 | | |
| 5 | Report Name/Date | RCRA Compliance Test Results for the Ton Container Heel Tests on the Metals Parts Furnace with Agent VX, Chemical Agent Munitions Disposal System (CAMDS), Tooele, Utah, Final Report, December 1994. |
| 6 | Report Prepare | Science Applications International Corporation and TRC |
| 7 | Testing Firm | TRC Environmental |
| 8 | Testing Dates | September 13, 14, 16, 19, 20, 1994 |
| 9 | Cond Dates | Sep-94 |
| 10 | Condition Descr | VX agent trial burn |
| 11 | Content | PM, HCl/Cl ₂ , metals, DRE, PCDD/F, VOC/SVOC (Runs 2, 4, 5) |
| 12 | | |
| 13 | 3004C2 | 3004C2 |
| 14 | | |
| 15 | Report Name/Date | Test Burn Report - Metals Parts Furnace Performance Standard Demonstration Burn Using Ton Containers with GB Heels |
| 16 | Report Prepare | IT Corp. |
| 17 | Testing Firm | IT Corp. |
| 18 | Testing Dates | May 1, July 10-13, 1995 |
| 19 | Cond Dates | Jan-95 |
| 20 | Condition Descr | GB agent trial burn |
| 21 | Content | PM, HCl/Cl ₂ , metals, DRE, PCDD/F, VOC/SVOC (Runs 4-6) |
| 22 | | |
| 23 | 3004C3 | 3004C3 |
| 24 | | |
| 25 | Report Name/Date | Test Burn Report - Metals Parts Furnace Performance Standard Demonstration Burn Using Ton Containers with GB Heels |
| 26 | Report Prepare | IT Corp. |
| 27 | Testing Firm | IT Corp. |
| 28 | Testing Dates | April 27, 1995 |
| 29 | Cond Dates | Apr-95 |
| 30 | Condition Descr | Baseline - one run w/nat gas only without agent GB |
| 31 | Content | PM, HCl/Cl ₂ , metals, DRE, PCDD/F, VOC/SVOC |

| | B | C | D | E | F | G | H | I | J | K | L | M |
|----|------------------------------|--------------|---------|-------|-----|-----------|------|-----------|-----|-----------|-----|------------|
| 1 | Stack Gas Emissions 1 | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | Commer Units | | 7% O2 | | | | | | | | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |
| 6 | 3004C1 | Trial Burn | | | | R1 | | R2 | | R3 | | Cond Avg |
| 7 | | | | | | | | | | | | |
| 8 | CO (RA) | E1 | ppmv | y | | 12.46 | | 4.94 | | 9.51 | | 9.0 |
| 9 | CO (MHRA) | | ppmv | y | | | | | | | | |
| 10 | | | | | | | | | | | | |
| 11 | PM | E1 | gr/dscf | y | | 0.003 | | 0.0053 | | 0.0031 | | 0.0038 |
| 12 | | | | | | | | | | | | |
| 13 | HCl | | mg/dscf | n | nd | 0.0017 | nd | 0.0019 | nd | 0.0019 | | |
| 14 | Cl2 | | mg/dscf | n | | 0.0127 | | 0.0059 | | 0.0238 | | |
| 15 | | | | | | | | | | | | |
| 16 | HCl | E1 | ppmv | y | nd | 0.04 | nd | 0.04 | nd | 0.04 | | 0.04 |
| 17 | Cl2 | E1 | ppmv | y | | 0.29 | | 0.14 | | 0.55 | | 0.33 |
| 18 | Total Chlorine | E1 | ppmv | y | 6.1 | 0.61 | 13.6 | 0.32 | 3.7 | 1.15 | 5.9 | 0.69 |
| 19 | | | | | | | | | | | | |
| 20 | POHC | Agent GB | | | | | | | | | | |
| 21 | POHC Feedrate | | lb/hr | | | 143.49 | | 175.63 | | 143.06 | | 34 |
| 22 | Emission Rate | E1 | lb/hr | | nd | 4.47E-06 | nd | 5.13E-06 | nd | 4.21E-06 | | |
| 23 | DRE | E1 | % | | > | 99.999997 | > | 99.999997 | > | 99.999997 | > | 99.9999970 |
| 24 | | | | | | | | | | | | |
| 25 | Aluminum | | ug/dscf | n | | | | | | | | |
| 26 | Antimony | | ug/dscf | n | nd | 0.013 | nd | 0.013 | nd | 0.013 | | |
| 27 | Arsenic | | ug/dscf | n | nd | 0.013 | nd | 0.013 | nd | 0.013 | | |
| 28 | Barium | | ug/dscf | n | | 0.041 | | 0.049 | | 0.046 | | |
| 29 | Beryllium | | ug/dscf | n | nd | 0.005 | nd | 0.005 | nd | 0.005 | | |
| 30 | Boron | | ug/dscf | n | | | | | | | | |
| 31 | Cadmium | | ug/dscf | n | | 0.025 | | 0.053 | | 0.027 | | |
| 32 | Chromium | | ug/dscf | n | nd | 0.051 | nd | 0.08 | nd | 0.081 | | |
| 33 | Chromium (Hex) | | ug/dscf | n | | | | | | | | |
| 34 | Cobolt | | ug/dscf | n | | | | | | | | |
| 35 | Copper | | ug/dscf | n | nd | 0.089 | nd | 0.027 | nd | 0.054 | | |
| 36 | Lead | | ug/dscf | n | | 0.331 | | 0.292 | | 0.323 | | |
| 37 | Manganese | | ug/dscf | n | | | | | | | | |
| 38 | Mercury | | ug/dscf | n | | 0.024 | nd | 0.008 | nd | 0.008 | | |
| 39 | Nickel | | ug/dscf | n | nd | 0.127 | nd | 0.133 | nd | 0.134 | | |
| 40 | Phosphorus | | ug/dscf | n | | | | | | | | |
| 41 | Selenium | | ug/dscf | n | nd | 0.127 | nd | 0.133 | nd | 0.134 | | |
| 42 | Silver | | ug/dscf | n | nd | 0.025 | nd | 0.027 | nd | 0.027 | | |
| 43 | Thallium | | ug/dscf | n | nd | 0.127 | | 0.04 | nd | 0.094 | | |
| 44 | Tin | | ug/dscf | n | | | | | | | | |
| 45 | Vanadium | | ug/dscf | n | | | | | | | | |
| 46 | Zinc | | ug/dscf | n | | | | | | | | |
| 47 | | | | | | | | | | | | |
| 48 | Sampling Train | PM, HCl E1 | | | | | | | | | | |
| 49 | Stack Gas Flowrate | | dscfm | | | 2984 | | 2710 | | 2709 | | 2801.0 |
| 50 | O2 | | % | | | 13.6 | | 13.8 | | 13.8 | | 13.7 |
| 51 | Moisture | | % | | | 38.6 | | 38 | | 38 | | 38.2 |
| 52 | Temperature | | °F | | | 220 | | 220 | | 215 | | 218.3 |
| 53 | | | | | | | | | | | | |
| 54 | Sampling Train | Metals E2 | | | | | | | | | | |
| 55 | Stack Gas Flowrate | | dscfm | | | 2799 | | 2668 | | 2658 | | 2708.3 |
| 56 | O2 | | % | | | 13.5 | | 13.4 | | 13.5 | | 13.5 |
| 57 | Moisture | | % | | | 38.4 | | 38.5 | | 38.2 | | 38.4 |
| 58 | Temperature | | °F | | | 217 | | 223 | | 216 | | 218.7 |
| 59 | | | | | | | | | | | | |
| 60 | Aluminum | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 61 | Antimony | E2 | ug/dscm | y | nd | 0.9 | nd | 0.8 | nd | 0.9 | 100 | 0.9 |
| 62 | Arsenic | E2 | ug/dscm | y | nd | 0.9 | nd | 0.8 | nd | 0.9 | 100 | 0.9 |
| 63 | Barium | E2 | ug/dscm | y | | 2.7 | | 3.2 | | 3.0 | | 3.0 |
| 64 | Beryllium | E2 | ug/dscm | y | nd | 0.3 | nd | 0.3 | nd | 0.3 | 100 | 0.3 |
| 65 | Boron | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 66 | Cadmium | E2 | ug/dscm | y | | 1.65 | | 3.4 | | 1.8 | | 2.3 |
| 67 | Chromium | E2 | ug/dscm | y | nd | 3.4 | nd | 5.2 | nd | 5.3 | | 4.6 |
| 68 | Chromium (Hex) | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 69 | Cobolt | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 70 | Copper | E2 | ug/dscm | y | nd | 5.9 | nd | 1.8 | nd | 3.6 | 100 | 3.7 |
| 71 | Lead | E2 | ug/dscm | y | | 21.83 | | 19.0 | | 21.3 | | 20.7 |

| | B | C | D | E | F | G | H | I | J | K | L | M |
|-----|--------------------|---------|----------------------|------------|-----|-----------|------|-----------|-----|-----------|-----|------------|
| 72 | Manganese | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 73 | Mercury | E2 | ug/dscm | y | | 1.6 | nd | 0.5 | nd | 0.5 | 40 | 0.9 |
| 74 | Nickel | E2 | ug/dscm | y | nd | 8.4 | nd | 8.7 | nd | 8.8 | 100 | 8.6 |
| 75 | Phosphorus | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 76 | Selenium | E2 | ug/dscm | y | nd | 8.4 | nd | 8.7 | nd | 8.8 | 100 | 8.6 |
| 77 | Silver | E2 | ug/dscm | y | nd | 1.6 | nd | 1.8 | nd | 1.8 | 100 | 1.7 |
| 78 | Thallium | E2 | ug/dscm | y | nd | 8.4 | | 2.6 | nd | 6.2 | 100 | 5.7 |
| 79 | Tin | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 80 | Vanadium | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 81 | Zinc | E2 | ug/dscm | y | | 0.0 | | 0.0 | | 0.0 | | 0.0 |
| 82 | | | | | | | | | | | | |
| 83 | SVM | E2 | ug/dscm | y | | 23.5 | | 22.5 | | 23.1 | | 23.0 |
| 84 | LVM | E2 | ug/dscm | y | 100 | 4.6 | 100 | 6.4 | 100 | 6.5 | 100 | 5.8 |
| 85 | | | | | | | | | | | | |
| 86 | Visible emissions | | opacity % | 6-min avgs | | 0 | | 0 | | 0 | | 0 |
| 87 | | | | | | | | | | | | |
| 88 | 3004C2 | | Performance Standard | | | R1 | | R2 | | R3 | | Cond Avg |
| 89 | | | | | | | | | | | | |
| 90 | CO (RA) | E1 | ppmv | y | | 18 | | 13 | | 12 | | 14.3 |
| 91 | CO (MHRA) | E1 | ppmv | y | | 20 | | 14 | | 13 | | 15.7 |
| 92 | | | | | | | | | | | | |
| 93 | PM | E1 | gr/dscf | y | | 0.0081 | | 0.015 | | 0.011 | | 0.0114 |
| 94 | | | | | | | | | | | | |
| 95 | HCl | | mg/dscf | n | nd | 0.0067 | nd | 0.0061 | nd | 0.0063 | | |
| 96 | Cl2 | | mg/dscf | n | | 0.0080 | | 0.0160 | | 0.0151 | | |
| 97 | | | | | | | | | | | | |
| 98 | HCl | E1 | ppmv | y | nd | 0.13 | nd | 0.13 | nd | 0.14 | 100 | 0.13 |
| 99 | Cl2 | E1 | ppmv | y | | 0.16 | | 0.36 | | 0.34 | | 0.29 |
| 100 | Total chlorine | E1 | ppmv | y | 29 | 0.46 | 15.8 | 0.85 | 17 | 0.81 | 19 | 0.71 |
| 101 | | | | | | | | | | | | |
| 102 | POHC | | Agent GB | | | | | | | | | |
| 103 | POHC Feedrate | | lb/hr | | | 54.67 | | 55.44 | | 56.67 | | 0 |
| 104 | Emission Rate | E1 | lb/hr | | nd | 1.41E-06 | nd | 1.46E-06 | nd | 1.45E-06 | | |
| 105 | DRE | E1 | % | | > | 99.999997 | > | 99.999997 | > | 99.999997 | > | 99.9999974 |
| 106 | | | | | | | | | | | | |
| 107 | | | | | | | | | | | | |
| 108 | Antimony | | g/dscm | n | nd | 2.17E-06 | nd | 2.23E-06 | nd | 2.20E-06 | | |
| 109 | Arsenic | | g/dscm | n | nd | 2.17E-06 | nd | 2.23E-06 | nd | 2.20E-06 | | |
| 110 | Barium | | g/dscm | n | nd | 1.09E-06 | nd | 1.12E-05 | nd | 1.15E-05 | | |
| 111 | Beryllium | | g/dscm | n | nd | 1.09E-06 | nd | 1.12E-05 | nd | 1.10E-06 | | |
| 112 | Cadmium | | g/dscm | n | nd | 1.09E-06 | nd | 1.12E-05 | nd | 1.21E-06 | | |
| 113 | Chromium | | g/dscm | n | nd | 3.93E-06 | | 6.08E-06 | nd | 5.77E-06 | | |
| 114 | Chromium (Hex) | | mg/dscm | n | | 1.23E-03 | | 1.22E-03 | | 2.88E-04 | | |
| 115 | Copper | | g/dscm | n | nd | 5.43E-06 | nd | 5.58E-06 | nd | 5.51E-06 | | |
| 116 | Lead | | g/dscm | n | nd | 6.52E-07 | nd | 7.46E-07 | | 1.43E-06 | | |
| 117 | Mercury | | g/dscm | n | nd | 2.85E-07 | nd | 3.53E-07 | nd | 2.73E-07 | | |
| 118 | Selenium | | g/dscm | n | | 1.57E-06 | nd | 1.59E-06 | nd | 1.63E-06 | | |
| 119 | Silver | | g/dscm | n | nd | 1.44E-06 | nd | 1.14E-06 | nd | 1.16E-06 | | |
| 120 | Thallium | | g/dscm | n | nd | 2.17E-06 | nd | 2.23E-06 | nd | 2.20E-06 | | |
| 121 | | | | | | | | | | | | |
| 122 | Sampling Train | PM, HCl | E1 | | | | | | | | | |
| 123 | Stack Gas Flowrate | | dscfm | | | 2405 | | 2592 | | 2554 | | 2517 |
| 124 | O2 | | % | | | 12.8 | | 13.5 | | 13.5 | | 13 |
| 125 | Moisture | | % | | | 38 | | 38.7 | | 37.8 | | 38 |
| 126 | Temperature | | °F | | | 225 | | 222 | | 229 | | 225 |
| 127 | | | | | | | | | | | | |
| 128 | Sampling Train | Metals | E2 | | | | | | | | | |
| 129 | Stack Gas Flowrate | | dscfm | | | 2471 | | 2523 | | 2589 | | 2528 |
| 130 | O2 | | % | | | 12.8 | | 13.5 | | 13.5 | | 13 |
| 131 | Moisture | | % | | | 37.2 | | 38.4 | | 37.1 | | 38 |
| 132 | Temperature | | °F | | | 228 | | 229 | | 234 | | 230 |
| 133 | | | | | | | | | | | | |
| 134 | | | | | | | | | | | | |
| 135 | Antimony | E1 | ug/dscm | y | nd | 3.7 | nd | 4.2 | nd | 4.1 | 100 | 4.0 |
| 136 | Arsenic | E1 | ug/dscm | y | nd | 3.7 | nd | 4.2 | nd | 4.1 | 100 | 4.0 |
| 137 | Barium | E1 | ug/dscm | y | nd | 1.9 | nd | 20.9 | nd | 21.5 | 100 | 14.7 |
| 138 | Beryllium | E1 | ug/dscm | y | nd | 1.9 | nd | 20.9 | nd | 2.1 | 100 | 8.3 |
| 139 | Cadmium | E1 | ug/dscm | y | nd | 1.9 | nd | 20.9 | nd | 2.3 | 100 | 8.3 |
| 140 | Chromium | E1 | ug/dscm | y | nd | 6.7 | | 11.3 | nd | 10.8 | 61 | 9.6 |
| 141 | Chromium (Hex) | E1 | ug/dscm | y | | 2.1 | | 2.3 | | 0.5 | | 1.6 |
| 142 | Copper | E1 | ug/dscm | y | nd | 9.3 | nd | 10.4 | nd | 10.3 | 100 | 10.0 |

| | B | C | D | E | F | G | H | I | J | K | L | M |
|-----|--------------------|---------|------------------------|---|-----|----------|-----|------|-----|------|-----|----------|
| 143 | Lead | E1 | ug/dscm | y | nd | 1.1 | nd | 1.4 | | 2.7 | 48 | 1.7 |
| 144 | Mercury | E1 | ug/dscm | y | nd | 0.5 | nd | 0.7 | nd | 0.5 | 100 | 0.6 |
| 145 | Selenium | E1 | ug/dscm | y | | 2.7 | nd | 3.0 | nd | 3.0 | 100 | 2.9 |
| 146 | Silver | E1 | ug/dscm | y | nd | 2.5 | nd | 2.1 | nd | 2.2 | 100 | 2.3 |
| 147 | Thallium | E1 | ug/dscm | y | nd | 3.7 | nd | 4.2 | nd | 4.1 | 100 | 4.0 |
| 148 | | | | | | | | | | | | |
| 149 | SVM | E1 | ug/dscm | y | 100 | 3.0 | 100 | 22.3 | 46 | 4.9 | 91 | 10.1 |
| 150 | LVM | E1 | ug/dscm | y | 100 | 12.3 | 69 | 36.4 | 100 | 16.9 | 83 | 21.9 |
| 151 | | | | | | | | | | | | |
| 152 | | | | | | | | | | | | |
| 153 | 3004C3 | | Baseline - one run w/n | | | R1 | | R2 | | R3 | | Cond Avg |
| 154 | | | | | | | | | | | | |
| 155 | CO (RA) | E1 | ppmv | y | | 10 | | | | | | |
| 156 | CO (MHRA) | E1 | ppmv | y | | 12 | | | | | | |
| 157 | | | | | | | | | | | | |
| 158 | PM | E1 | gr/dscf | y | | 0.00068 | | | | | | |
| 159 | | | | | | | | | | | | |
| 160 | HCl | | mg/dscf | n | nd | 0.0150 | | | | | | |
| 161 | Cl2 | | mg/dscf | n | nd | 0.0033 | | | | | | |
| 162 | | | | | | | | | | | | |
| 163 | HCl | E1 | ppmv | y | nd | 0.39 | | | | | | |
| 164 | Cl2 | E1 | ppmv | y | | 0.09 | | | | | | |
| 165 | Total Chlorine | E1 | ppmv | y | 69 | 0.57 | | | | | | |
| 166 | | | | | | | | | | | | |
| 167 | Aluminum | | g/dscm | n | | | | | | | | |
| 168 | Antimony | | g/dscm | n | nd | 2.22E-06 | | | | | | |
| 169 | Arsenic | | g/dscm | n | nd | 2.41E-06 | | | | | | |
| 170 | Barium | | g/dscm | n | nd | 1.63E-05 | | | | | | |
| 171 | Beryllium | | g/dscm | n | nd | 1.14E-06 | | | | | | |
| 172 | Boron | | g/dscm | n | | | | | | | | |
| 173 | Cadmium | | g/dscm | n | nd | 1.66E-06 | | | | | | |
| 174 | Chromium | | g/dscm | n | nd | 4.07E-06 | | | | | | |
| 175 | Chromium (Hex) | | mg/dscm | n | | 4.17E-04 | | | | | | |
| 176 | Cobolt | | g/dscm | n | | | | | | | | |
| 177 | Copper | | g/dscm | n | nd | 5.58E-06 | | | | | | |
| 178 | Lead | | g/dscm | n | nd | 3.42E-06 | | | | | | |
| 179 | Manganese | | g/dscm | n | | | | | | | | |
| 180 | Mercury | | g/dscm | n | nd | 4.31E-07 | | | | | | |
| 181 | Nickel | | g/dscm | n | | | | | | | | |
| 182 | Phosphorus | | g/dscm | n | | | | | | | | |
| 183 | Selenium | | g/dscm | n | nd | 1.19E-06 | | | | | | |
| 184 | Silver | | g/dscm | n | nd | 3.60E-06 | | | | | | |
| 185 | Thallium | | g/dscm | n | nd | 2.22E-06 | | | | | | |
| 186 | Tin | | g/dscm | n | | | | | | | | |
| 187 | Vanadium | | g/dscm | n | | | | | | | | |
| 188 | Zinc | | g/dscm | n | | | | | | | | |
| 189 | | | | | | | | | | | | |
| 190 | Sampling Train | PM, HCl | E1 | | | | | | | | | |
| 191 | Stack Gas Flowrate | | dscfm | | | 2503 | | | | | | |
| 192 | O2 | | % | | | 14.8 | | | | | | |
| 193 | Moisture | | % | | | 36.8 | | | | | | |
| 194 | Temperature | | °F | | | 214 | | | | | | |
| 195 | | | | | | | | | | | | |
| 196 | Sampling Train | Metals | E2 | | | | | | | | | |
| 197 | Stack Gas Flowrate | | dscfm | | | 2665 | | | | | | |
| 198 | O2 | | % | | | 14.8 | | | | | | |
| 199 | Moisture | | % | | | 35.4 | | | | | | |
| 200 | Temperature | | °F | | | 224 | | | | | | |
| 201 | | | | | | | | | | | | |
| 202 | Aluminum | E2 | ug/dscm | y | | 0.0 | | | | | | |
| 203 | Antimony | E2 | ug/dscm | y | nd | 5.01 | | | | | | |
| 204 | Arsenic | E2 | ug/dscm | y | nd | 5.44 | | | | | | |
| 205 | Barium | E2 | ug/dscm | y | nd | 36.81 | | | | | | |
| 206 | Beryllium | E2 | ug/dscm | y | nd | 2.57 | | | | | | |
| 207 | Boron | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 208 | Cadmium | E2 | ug/dscm | y | nd | 3.75 | | | | | | |
| 209 | Chromium | E2 | ug/dscm | y | nd | 9.19 | | | | | | |
| 210 | Chromium (Hex) | E2 | ug/dscm | y | | 0.94 | | | | | | |
| 211 | Cobolt | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 212 | Copper | E2 | ug/dscm | y | nd | 12.60 | | | | | | |
| 213 | Lead | E2 | ug/dscm | y | nd | 7.72 | | | | | | |

| | B | C | D | E | F | G | H | I | J | K | L | M |
|-----|------------|----|---------|---|-----|------|---|---|---|---|---|---|
| 214 | Manganese | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 215 | Mercury | E2 | ug/dscm | y | nd | 0.97 | | | | | | |
| 216 | Nickel | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 217 | Phosphorus | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 218 | Selenium | E2 | ug/dscm | y | nd | 2.69 | | | | | | |
| 219 | Silver | E2 | ug/dscm | y | nd | 8.13 | | | | | | |
| 220 | Thallium | E2 | ug/dscm | y | nd | 5.01 | | | | | | |
| 221 | Tin | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 222 | Vanadium | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 223 | Zinc | E2 | ug/dscm | y | | 0.00 | | | | | | |
| 224 | | | | | | | | | | | | |
| 225 | SVM | E2 | ug/dscm | y | 100 | 11.5 | | | | | | |
| 226 | LVM | E2 | ug/dscm | y | 100 | 17.2 | | | | | | |

| | B | C | D | E | F | G | H | I | J | K | L | M |
|----|------------------------|---------------------|------|---|----------|----------|----------|----------|---|---|---|---|
| 1 | Feedstreams | | | | | | | | | | | |
| 2 | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | |
| 4 | 3004C1 | VX agent trial burn | 7%O2 | | R1 | R2 | R3 | Cond Avg | | | | |
| 5 | | | | | | | | | | | | |
| 6 | Feedstream Number | | | | F1 | F1 | F1 | F1 | | | | |
| 7 | Feed Class | | | | Solid HW | Solid HW | Solid HW | Solid HW | | | | |
| 8 | Feedstream Description | Agent heels | | | Agent VX | Agent VX | Agent VX | Agent VX | | | | |
| 9 | Feed Rate | lb/hr | | | 33.5 | 33.56 | 33.53 | 33.5 | | | | |
| 10 | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | |
| 12 | 3004C2 | GB agent trial burn | | | R1 | R2 | R3 | Cond Avg | | | | |
| 13 | | | | | | | | | | | | |
| 14 | Feedstream Number | | | | F1 | F1 | F1 | F1 | | | | |
| 15 | Feed Class | | | | Solid HW | Solid HW | Solid HW | Solid HW | | | | |
| 16 | Feedstream Description | Ton container | | | Agent GB | Agent GB | Agent GB | Agent GB | | | | |
| 17 | Feed Rate | lb/hr | | | 54.67 | 55.44 | 56.67 | 55.6 | | | | |
| 18 | | | | | | | | | | | | |
| 19 | | | | | | | | | | | | |
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| | B | C | D | E | F | G | H | I | J | K | L | M |
|----|---|---|---|---|---|---|---|---|---|---|---|---|
| 61 | | | | | | | | | | | | |
| 62 | | | | | | | | | | | | |
| 63 | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | |

| | B | C | D | E | F | G |
|----|----------------------------|--|---|------|---|---|
| 1 | Process Information | | | | | |
| 2 | | | | | | |
| 3 | 3004C1 | VX agent trial burn | | | | |
| 4 | | Cond Avg | | | | |
| 5 | Primary Comb Chamb Temp | °F | | 1295 | | |
| 6 | Sec Comb Chamb Temp | °F | | 1680 | | |
| 7 | Comb Cham Pressure | in H2O | | 2 | | |
| 8 | VS Pressure Drop | in H2O | | 40 | | |
| 9 | VS Brine Flow | gpm | | 66 | | |
| 10 | Clean Liquor Flow | gpm | | 285 | | |
| 11 | Demistor pressure drop | in H2O | | 8 | | |
| 12 | Scrubber liquid | pH | | 9.7 | | |
| 13 | | | | | | |
| 14 | | | | | | |
| 15 | 3004C2 | GB agent trial burn | | | | |
| 16 | | Cond Avg | | | | |
| 17 | Primary Comb Chamb Temp | °F | | 1330 | | |
| 18 | Sec Comb Chamb Temp | °F | | 1675 | | |
| 19 | Primary Comb Cham Pressure | in H2O | | 2.5 | | |
| 20 | VS Pressure Drop | in H2O | | 40 | | |
| 21 | VS Brine Flow | gpm | | 61 | | |
| 22 | Clean Liquor Flow | gpm | | 249 | | |
| 23 | Demistor pressure drop | in H2O | | 8 | | |
| 24 | Scrubber liquid | pH | | | | |
| 25 | | | | | | |
| 26 | | | | | | |
| 27 | 3004C3 | Baseline - one run w/nat gas only without agent GB | | | | |
| 28 | | Cond Avg | | | | |
| 29 | Primary Comb Chamb Temp | °F | | 1337 | | |
| 30 | Sec Comb Chamb Temp | °F | | 1649 | | |
| 31 | Primary Comb Cham Pressure | in H2O | | 2.5 | | |
| 32 | VS Pressure Drop | in H2O | | 40 | | |
| 33 | VS Brine Flow | gpm | | 59 | | |
| 34 | Clean Liquor Flow | gpm | | 249 | | |
| 35 | Demistor pressure drop | in H2O | | 7 | | |
| 36 | Scrubber liquid | pH | | | | |

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | |
|----|--|-------|--|---------|--------|--------|---------|---------|--------|--------|---------|---------|--------|--------|---------|---------|--------|--------|--|
| 1 | PCDD/PCDF | | | | | | | | | | | | | | | | | | |
| 2 | N | | | | | | | | | | | | | | | | | | |
| 3 | Facility Name and ID: | | TOCDF, MPF | | | | | | | | | | | | | | | | |
| 4 | Condition ID: | | 3004C1 | | | | | | | | | | | | | | | | |
| 5 | Condition/Test Date: | | VX trial burn, Sept 13, 14, 16, 19, 20, 1994 | | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | | |
| 7 | I-TEF | | Run 2 | | | | Run 4 | | | | Run 5 | | | | | | | | |
| 8 | Wght Fact | | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | |
| 9 | | | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND | |
| 10 | Detected in sample volume (pg) | | | | | | | | | | | | | | | | | | |
| 11 | 2,3,7,8-TCDD | 1 | nd | 10 | 10.00 | 5.00 | 5.00 | nd | 5 | 5.00 | 2.50 | 2.50 | nd | 3 | 3 | 2 | 2 | 0 | |
| 12 | Total TCDD | 0 | | 10 | 0 | 10 | 0 | | 20 | 0.00 | 20 | 0.00 | | 20 | 0 | 20 | 0 | | |
| 13 | 1,2,3,7,8-PCDD | 0.5 | nd | 10 | 5.00 | 5.00 | 2.50 | nd | 8 | 4.00 | 4.00 | 2.00 | nd | 5 | 3 | 3 | 1 | 0 | |
| 14 | Total PCDD | 0 | | 20 | 0 | 20 | 0 | | 40 | 0.00 | 40 | 0.00 | | 40 | 0 | 40 | 0 | | |
| 15 | 1,2,3,4,7,8-HxCDD | 0.1 | nd | 20 | 2.00 | 10.00 | 1.00 | | 10 | 1.00 | 10.00 | 1.00 | nd | 5 | 1 | 3 | 0 | 0 | |
| 16 | 1,2,3,6,7,8-HxCDD | 0.1 | nd | 10 | 1.00 | 5.00 | 0.50 | | 9 | 0.90 | 9.00 | 0.90 | | 5 | 1 | 5 | 1 | 0 | |
| 17 | 1,2,3,7,8,9-HxCDD | 0.1 | nd | 10 | 1.00 | 5.00 | 0.50 | | 10 | 1.00 | 10.00 | 1.00 | | 6 | 1 | 6 | 1 | 0 | |
| 18 | Total HxCDD | 0 | | 50 | 0 | 50 | 0 | | 50 | 0.00 | 50 | 0.00 | | 45 | 0 | 45 | 0 | | |
| 19 | 1,2,3,4,6,7,8-HpCDD | 0.01 | | 20 | 0.20 | 20.00 | 0.20 | | 20 | 0.20 | 20.00 | 0.20 | | 20 | 0 | 20 | 0 | | |
| 20 | Total HpCDD | 0 | | 20 | 0 | 20 | 0 | | 10 | 0.00 | 10 | 0.00 | | 10 | 0 | 10 | 0 | | |
| 21 | OCDD | 0.001 | | 60 | 0.06 | 60.00 | 0.06 | | 70 | 0.07 | 70 | 0.07 | | 60 | 0 | 60 | 0 | | |
| 22 | 2,3,7,8-TCDF | 0.1 | nd | 10 | 1.00 | 5.00 | 0.50 | | 10 | 1.00 | 10 | 1.00 | | 10 | 1 | 10 | 1 | 0 | |
| 23 | Total TCDF | 0 | nd | 10 | 0 | 5 | 0 | | 130 | 0.00 | 130 | 0.00 | | 50 | 0 | 50 | 0 | | |
| 24 | 1,2,3,7,8-PCDF | 0.05 | | 10 | 1 | 10 | 1 | | 10 | 0.50 | 10 | 0.50 | | 10 | 1 | 10 | 1 | 0 | |
| 25 | 2,3,4,7,8-PCDF | 0.5 | | 20 | 10 | 20 | 10 | | 10 | 5.00 | 10 | 5.00 | | 10 | 5 | 10 | 5 | 0 | |
| 26 | Total PCDF | 0 | | 140 | 0 | 140 | 0 | | 50 | 0.00 | 50 | 0.00 | | 10 | 0 | 10 | 0 | | |
| 27 | 1,2,3,4,7,8-HxCDF | 0.1 | | 40 | 4 | 40 | 4 | | 40 | 4.00 | 40 | 4.00 | | 30 | 3 | 30 | 3 | 0 | |
| 28 | 1,2,3,6,7,8-HxCDF | 0.1 | | 20 | 2 | 20 | 2 | | 10 | 1.00 | 10 | 1.00 | | 10 | 1 | 10 | 1 | 0 | |
| 29 | 2,3,4,6,7,8-HxCDF | 0.1 | | 10 | 1 | 10 | 1 | | 20 | 2.00 | 20 | 2.00 | | 20 | 2 | 20 | 2 | 0 | |
| 30 | 1,2,3,7,8,9-HxCDF | 0.1 | nd | 9 | 1 | 5 | 0 | nd | 5 | 0.50 | 3 | 0.25 | nd | 3 | 0 | 2 | 0 | 0 | |
| 31 | Total HxCDF | 0 | | 80 | 0 | 80 | 0 | | 50 | 0.00 | 50 | 0.00 | | 60 | 0 | 60 | 0 | | |
| 32 | 1,2,3,4,6,7,8-HpCDF | 0.01 | | 30 | 0 | 30 | 0 | | 30 | 0.30 | 30 | 0.30 | | 30 | 0 | 30 | 0 | | |
| 33 | 1,2,3,4,7,8,9-HpCDF | 0.01 | nd | 10 | 0 | 5 | 0 | nd | 9 | 0.09 | 5 | 0.05 | nd | 5 | 0 | 3 | 0 | 0 | |
| 34 | Total HpCDF | 0 | | 10 | 0 | 10 | 0 | nd | 10 | 0.00 | 5 | 0.00 | | 5 | 0 | 5 | 0 | | |
| 35 | OCDF | 0.001 | | 30 | 0 | 30 | 0 | | 20 | 0.02 | 20 | 0.02 | | 30 | 0 | 30 | 0 | | |
| 36 | | | | | | | | | | | | | | | | | | | |
| 37 | Gas sample volume (dscf) | | 133.03 | | | | 133.03 | | | | 120.931 | | | | 114.685 | | | | |
| 38 | O2 (%) | | 13.60 | | | | 13.60 | | | | 13.5 | | | | 13.5 | | | | |
| 39 | | | | | | | | | | | | | | | | | | | |
| 40 | PCDD/PCDF (ng in sample) | | 0.039 | | | | 0.4 | | | | 0.027 | | | | 0.022 | | | | |
| 41 | PCDD/PCDF (ng/dscm @ 7% O2) | | 53.7 | | | | 0.020 | | | | 0.214 | | | | 0.014 | | | | |
| 42 | | | | | | | | | | | | | | | | | | | |
| 43 | TEQ Cond Avg | | 0.0121 | | | | | | | | | | | | | | | | |
| 44 | Total Cond Avg | | 0.2154 | | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | | |
| 46 | Note: Assumed EMPCs as detection limit in cases where no dl was defined for a given isomer/congener; assumed that EMPC was at or > dl; | | | | | | | | | | | | | | | | | | |
| 47 | also assumed a dl of 10 and nd where no dl or no EMPC (estimated max possible concentration) was given. | | | | | | | | | | | | | | | | | | |

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
|----|--|-------|--------------------------------------|---------|--------|--------|---------|---------|--------|--------|---------|---------|--------|--------|---------|---------|--------|--------|
| 1 | PCDD/PCDF | | | | | | | | | | | | | | | | | |
| 2 | N | | | | | | | | | | | | | | | | | |
| 3 | Facility Name and ID: | | TOCDF, MPF | | | | | | | | | | | | | | | |
| 4 | Condition ID: | | 3004C2 | | | | | | | | | | | | | | | |
| 5 | Condition/Test Date: | | GB trial burn, July 11, 12, 13, 1995 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | | | | |
| 7 | I-TEF | | | | Run 2 | | | | Run 4 | | | | Run 5 | | | | | |
| 8 | Wght Fact | | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ | Total | TEQ |
| 9 | | | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND | Full ND | Full ND | 1/2 ND | 1/2 ND |
| 10 | Detected in sample volume (pg) | | | | | | | | | | | | | | | | | |
| 11 | 2,3,7,8-TCDD | 1 | nd | 44.4 | 44.40 | 22.20 | 22.20 | nd | 16.7 | 16.70 | 8.35 | 8.35 | nd | 45.8 | 46 | 23 | 23 | |
| 12 | Total TCDD | 0 | nd | 44.4 | 0 | 22 | 0 | nd | 16.7 | 0.00 | 8 | 0.00 | nd | 45.8 | 0 | 23 | 0 | |
| 13 | 1,2,3,7,8-PCDD | 0.5 | nd | 16.9 | 8.45 | 8.45 | 4.23 | nd | 8.4 | 4.20 | 4.20 | 2.10 | nd | 13.7 | 7 | 7 | 3 | |
| 14 | Total PCDD | 0 | | 13.9 | 0 | 14 | 0 | nd | 8.4 | 0.00 | 4 | 0.00 | nd | 41.6 | 0 | 21 | 0 | |
| 15 | 1,2,3,4,7,8-HxCDD | 0.1 | nd | 23.5 | 2.35 | 11.75 | 1.18 | nd | 11.5 | 1.15 | 5.75 | 0.58 | nd | 25.9 | 3 | 13 | 1 | |
| 16 | 1,2,3,6,7,8-HxCDD | 0.1 | nd | 22.6 | 2.26 | 11.30 | 1.13 | nd | 11 | 1.10 | 5.50 | 0.55 | nd | 24.8 | 2 | 12 | 1 | |
| 17 | 1,2,3,7,8,9-HxCDD | 0.1 | nd | 21.6 | 2.16 | 10.80 | 1.08 | nd | 10.6 | 1.06 | 5.30 | 0.53 | nd | 23.8 | 2 | 12 | 1 | |
| 18 | Total HxCDD | 0 | nd | 27.7 | 0 | 14 | 0 | nd | 14.9 | 0.00 | 7 | 0.00 | nd | 47.3 | 0 | 24 | 0 | |
| 19 | 1,2,3,4,6,7,8-HpCDD | 0.01 | | 46.5 | 0.47 | 46.50 | 0.47 | | 12.8 | 0.13 | 12.80 | 0.13 | | 103 | 1 | 103 | 1 | |
| 20 | Total HpCDD | 0 | | 77.3 | 0 | 77 | 0 | | 12.8 | 0.00 | 13 | 0.00 | | 279 | 0 | 279 | 0 | |
| 21 | OCDD | 0.001 | | 270 | 0.27 | 270.00 | 0.27 | | 50.4 | 0.05 | 50 | 0.05 | | 1790 | 2 | 1790 | 2 | |
| 22 | 2,3,7,8-TCDF | 0.1 | | 25.1 | 2.51 | 25.10 | 2.51 | | 13.7 | 1.37 | 14 | 1.37 | nd | 38.8 | 4 | 19 | 2 | |
| 23 | Total TCDF | 0 | | 25.1 | 0 | 25 | 0 | | 72.1 | 0.00 | 72 | 0.00 | | 96.1 | 0 | 96 | 0 | |
| 24 | 1,2,3,7,8-PCDF | 0.05 | | 13.2 | 1 | 13 | 1 | nd | 11.8 | 0.59 | 6 | 0.30 | nd | 23.6 | 1 | 12 | 1 | |
| 25 | 2,3,4,7,8-PCDF | 0.5 | | 10.6 | 5 | 11 | 5 | | 7 | 3.50 | 7 | 3.50 | nd | 34.8 | 17 | 17 | 9 | |
| 26 | Total PCDF | 0 | | 89.1 | 0 | 89 | 0 | | 108 | 0.00 | 108 | 0.00 | | 108 | 0 | 108 | 0 | |
| 27 | 1,2,3,4,7,8-HxCDF | 0.1 | | 26.4 | 3 | 26 | 3 | | 23.5 | 2.35 | 24 | 2.35 | nd | 26 | 3 | 13 | 1 | |
| 28 | 1,2,3,6,7,8-HxCDF | 0.1 | | 11.7 | 1 | 12 | 1 | nd | 16.8 | 1.68 | 8 | 0.84 | | 12.3 | 1 | 12 | 1 | |
| 29 | 2,3,4,6,7,8-HxCDF | 0.1 | nd | 9.8 | 1 | 5 | 0 | nd | 13.6 | 1.36 | 7 | 0.68 | nd | 11 | 1 | 6 | 1 | |
| 30 | 1,2,3,7,8,9-HxCDF | 0.1 | nd | 11 | 1 | 6 | 1 | nd | 15.4 | 1.54 | 8 | 0.77 | nd | 12.4 | 1 | 6 | 1 | |
| 31 | Total HxCDF | 0 | | 92 | 0 | 92 | 0 | | 44.6 | 0.00 | 45 | 0.00 | | 63 | 0 | 63 | 0 | |
| 32 | 1,2,3,4,6,7,8-HpCDF | 0.01 | nd | 26.3 | 0 | 13 | 0 | nd | 14.2 | 0.14 | 7 | 0.07 | nd | 23.5 | 0 | 12 | 0 | |
| 33 | 1,2,3,4,7,8,9-HpCDF | 0.01 | nd | 19.5 | 0 | 10 | 0 | nd | 10.6 | 0.11 | 5 | 0.05 | nd | 6.6 | 0 | 3 | 0 | |
| 34 | Total HpCDF | 0 | nd | 28.6 | 0 | 14 | 0 | nd | 15.5 | 0.00 | 8 | 0.00 | nd | 25.7 | 0 | 13 | 0 | |
| 35 | OCDF | 0.001 | | 38.3 | 0 | 38 | 0 | | 23.4 | 0.02 | 23 | 0.02 | nd | 29.3 | 0 | 15 | 0 | |
| 36 | | | | | | | | | | | | | | | | | | |
| 37 | Gas sample volume (dscf) | | | | 81.40 | 81.40 | 81.40 | | | 81.1 | 81.1 | 81.1 | | | 80.5 | 80.5 | 80.5 | |
| 38 | O2 (%) | | | | 12.80 | 12.80 | 12.80 | | | 13.5 | 13.5 | 13.5 | | | 12.8 | 12.8 | 12.8 | |
| 39 | | | | | | | | | | | | | | | | | | |
| 40 | PCDD/PCDF (ng in sample) | | | | 0.075 | 0.7 | 0.044 | | | 0.037 | 0.3 | 0.022 | | | 0.09 | 2.4 | 0.05 | |
| 41 | PCDD/PCDF (ng/dscm @ 7% O2) 82.6 | | | | 0.056 | 0.486 | 0.033 | 80.0 | | 0.03 | 0.28 | 0.02 | 95.6 | | 0.07 | 1.82 | 0.04 | |
| 42 | | | | | | | | | | | | | | | | | | |
| 43 | TEQ Cond Avg | | 0.0289 | | | | | | | | | | | | | | | |
| 44 | Total Cond Avg | | 0.8613 | | | | | | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | | | |
| 46 | Note: Reported values are front-half in Tables 4-34 thru 4-39; no reason found for no back half analysis; may need to check in TB Plan. | | | | | | | | | | | | | | | | | |
| 47 | | | | | | | | | | | | | | | | | | |