

**MISSOURI DEPARTMENT OF NATURAL RESOURCES
FIELD SERVICES DIVISION
PUBLIC DRINKING WATER PROGRAM
RECORD OF PUBLIC WATER SYSTEM SANITARY SURVEY**

PUBLIC WATER SYSTEM NAME:

Type of Inspection:	SRF		PRIORITY		Routine		DATE:
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Public Water System ID. No :	County Name :
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<input type="checkbox"/> Check person who should get sample results	<input type="checkbox"/> Check persons who should get inspection report
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Mayor	Superintendent/Manager
Name:	Name:
Address:	Address:
City-State-Zip code:	City-State-Zip code:
Office Phone Number:	Office Phone Number:
Home Phone Number:	Home Phone Number:

— Clerk/Secretary	Other
Name:	Name:
Address:	Address:
City-State-Zip code:	City-State-Zip code:
Office Phone Number:	Office Phone Number:
Home Phone Number:	Home Phone Number:

Other	Other
Name:	Name:
Address:	Address:
City-State-Zip code:	City-State-Zip code:
Office Phone Number:	Office Phone Number:
Home Phone Number:	Home Phone Number:

Other	Operators and Certification Level
Name:	
Address:	
City-State-Zip code:	
Office Phone Number:	
Home Phone Number:	

	WATER LOSS
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SYSTEM INFORMATION	Water Produced - [Water Sold + Water accounted for], Water Produced
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People served:	%
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Service Connections:	AVERAGE DAILY CONSUMPTION
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Capacity Primary:	Own System:
Finished Water Storage:	Secondary Systems:
No. & Names of Secondary Systems served:	Entire System:

	MAXIMUM DAILY CONSUMPTION
	Own System:
	Secondary Systems:
	Entire System:

C ok NA	ITEM	C ok NA	ITEM
	<p>ADMINISTRATION</p> <p>1. 10CSR60-3.010 Permit to Dispense status</p> <p>2. 640.115(1) Source of supply approved</p> <p>3. 10CSR60-3.010(1)(A) Construction permits</p> <p>4. 10CSR60-3.010(1)(B) Final approvals</p> <p>5. 10CSR60-10.010(2)(C) Owner supervised program</p> <p>6. 10 CSR60-10.010 Construction requirements</p> <p>7. 10 CSR 22-2.020(4) Dam safety permit (>35 ft tall)</p> <p>8. 10 CSR 22-3.030(1)(B) Dam maintenance & monitoring</p> <p>9. 10 CSR 60-10.030 Recreational use plan</p> <p>10. 10 CSR60-10.020 Siting requirements</p> <p>11. 10 CSR23-1.090 Well driller permit (after 1987)</p> <p>12. 10 CSR60-4.080(5) Sanitary construction defects</p> <p>13. 10 CSR60-4.055(1) GWUDI determination</p> <p>14. 10 CSR23-3.110 Plugging abandoned wells</p> <p>15. 10CSR60-14.010(4) Certified operators</p> <p>16. 10CSR60-14.010(4)(A) Chief operators in responsible charge</p> <p>17. 10CSR60-14.010(4)(A)(6) Standby chief operators</p> <p>18. 10CSR60-12.010 Emergency operations plan</p> <p>19. Vulnerability survey findings</p> <p>20. 10CSR60-10.040 Lead ban ordinance</p> <p>21. 10CSR60-11.010 Backflow prevention program</p> <p>22. 10CSR60-11.010(8)(B) Backflow device records</p> <p>23. 10CSR60-16.010 Primacy fees</p> <p>24. 10CSR60-16.030 Laboratory & administration fees</p> <p>25. 10CSR60-4.020(1)(A) Coliform sampling plan</p> <p>26. 10CSR60-15.070 Pb/Cu Sampling plan</p> <p>27. 10CSR60-7.010(4) Turbidity reporting</p> <p>28. 10CSR60-7.010(5) Disinfection reporting</p> <p>29. 10CSR60-7.010 Private lab coliform results</p> <p>30. 10CSR60-8.010 Public notification requirements</p> <p>31. 10CSR60-8.020 Lead ban & public notice</p> <p>32. 10CSR60-6.030 Exemption/variance requirements</p> <p>33. 10CSR20-8.170 Sludge management permit or plan</p> <p>34. 10CSR20-6.010(5) NPDES Permit on plant discharge</p> <p>35. 10CSR60-7.010(1) Monitoring reports due by 10th</p> <p>36. 10CSR60-7.010(2) Reporting violations</p> <p>37. 10CSR60-7.010(3) Reporting Disinfection /Turbidity</p> <p>38. 10CSR60-7.020(1) Reporting for Lead & Copper</p> <p>RECORD KEEPING</p> <p>37 10CSR60-9.010(1)(A) Coliform results (5 yrs)</p> <p>38 10CSR60-9.010(1)(A) Operational records (5 yrs)</p> <p>39 10CSR60-9.010(1)(A) Chemical results (10 yrs)</p> <p>40 10CSR60-9.010(1)(B) Violation actions (3 yrs)</p> <p>41 10CSR60-9.010(1)(C) Inspection reports (10 yrs)</p> <p>42 10CSR60-9.010(1)(D) Variance/exemption (5 yrs)</p> <p>43 10CSR60-9.010(2) Distribution System records</p> <p>TREATMENT</p> <p>44 10CSR60-4.080(3) Operational monitoring</p> <p>45 10 CSR 60-4.080(8) Approved chemicals, materials & coatings</p> <p>DISINFECTION</p> <p>46 10 CSR 60-4.055(3) Minimum residual - entry</p> <p>47 10 CSR 60-4.055(3)(F) Monitoring frequency</p> <p>48 10 CSR 60-4.055(4) Minimum residual – system</p> <p>49 10 CSR 60-4.055(5) Maximum residuals – system</p> <p>50 10 CSR 60-4.055(5) Maximum Chlorine dioxide residual</p> <p>51 10 CSR 60-4.090(4)(C)(2) Chlorine dioxide monitoring</p> <p>52 10 CSR 60-4.055(4)(E) Monitoring -Distribution system</p> <p>53 10 CSR 60-4.055(3)(E) Low residual reporting</p> <p>54 10 CSR 60-4.055(2)(D) CT study done</p> <p>55 10 CSR 60-4.055(2)(C) Meeting CT requirement</p> <p>56 10 CSR 60-4.055(6)(C) Profiling & Benchmarking</p>		<p>57 10 CSR 60-4.055(3)(A) Add Chlorine prior to ammonia</p> <p>58 10 CSR 60-4.055(3)(C) Add Chlorine prior to filters</p> <p>59 10 CSR 60-4.080(6) Disinfect new mains, wells, water storage & repairs</p> <p>60 10 CSR 60-4.090 Disinfection Byproduct MCLs</p> <p>61 10 CSR 60-4.090(3)(A) DBP Monitoring plan</p> <p>62 10 CSR 60-4.090(4)(D) DBP precursor (TOC) removal</p> <p>MCL / Monitoring</p> <p>63 10 CSR 60-4.020 Total Coliform</p> <p>64 10 CSR 60-4.030.Inorganic chemicals</p> <p>65 10 CSR 60-4.030(2)(C) &(D) Nitrates/Nitrites</p> <p>66 10 CSR 60-4.040 Synthetic organic chemicals</p> <p>67 10 CSR 60-4.050(3)(B) Monthly turbidity MCL</p> <p>68 10 CSR 60-4.050(3)(D) Acute turbidity MCL</p> <p>69 10 CSR 60-4.050(3) Report acute turbidity MCL</p> <p>70 10 CSR 60-4.060 Radionuclides</p> <p>71 10 CSR 60-4.070 Secondary contaminants</p> <p>72 10 CSR 60-4.080 Fluoride supplementation</p> <p>73 10 CSR 60-4.090 Disinfection byproducts MCLs</p> <p>74 10 CSR 60-4.090 Disinfection byproducts monitoring</p> <p>75 10 CSR 60-4.100 Volatile organic chemicals</p> <p>76 10 CSR 60-4.110 Unregulated chemicals</p> <p>77 10 CSR 60-15.020-15.050 Exceed Pb/Cu levels</p> <p>WATER SOURCES (Reservoirs)</p> <p>78 Capacity (2 years of carryover storage)</p> <p>79 Storage curves available</p> <p>80 Stadia markings & records of weekly water levels</p> <p>81 Recreation plan</p> <p>WATER SHED MANAGEMENT</p> <p>82 Silt control structures</p> <p>83 Any sources of contamination in the watershed.</p> <p>84 Pesticide control program</p> <p>85 Water shed management plan</p> <p>86 Algae Control Program</p> <p>87 Mowing</p> <p>88 Erosion Control</p> <p>EMERGENCY SPILLWAY</p> <p>89 No Flow Obstructions in the entrance or channel</p> <p>90 Discharge away from Dam</p> <p>91 Spillway Weir condition</p> <p>92 Spillway Outlet Condition</p> <p>93 Discharge Stream Erosion</p> <p>94 Discharge Stream Obstructions</p> <p>DROP INLET PRINCIPLE SPILLWAYS</p> <p>93 Spillway Capacity</p> <p>94 Inlet Trash Rack Condition</p> <p>95 Spillway Riser Condition</p> <p>96 Riser Drain</p> <p>97 Conduit Alignment</p> <p>98 Conduit Joints Condition</p> <p>99 Spillway Outlet Condition</p> <p>100 Discharge Stream Erosion</p> <p>101 Discharge Stream Obstructions</p> <p>APRON PRINCIPLE SPILLWAY</p> <p>102 No Fish Fence</p> <p>103 Inlet Free of Obstructions</p> <p>104 Inlet Weir Condition</p> <p>105 Condition Channel Apron & Joints</p> <p>106 Apron Underdrain Condition</p> <p>107 Apron Free of Obstructions</p> <p>108 Condition Retaining Walls & Joints</p> <p>109 Retaining Wall Drainage</p> <p>110 Retaining Wall Tree & Brush Control</p>

C ok NA	ITEM	C ok NA	ITEM
	APRON PRINCIPLE SPILLWAY (continued)		WELL LOCATED AT LEAST:
	107 Spillway Outlet Condition		165 300 ft from chemical storage areas
	108 Discharge Stream Erosion		166 300 ft from landfills
	109 Discharge Stream Obstructions		167 300 ft from Waste Water lagoons
	DAM BERM		168 300 ft from Petroleum Storage
	110 Mowing		169 100 ft from below grade manure storage
	111 Erosion Control		170 100 ft from Unplugged Abandoned Wells
	112 Sinkholes, Cracks or Slides		171 100 ft from Cesspools & Privies
	113 Brush & Tree Removal		172 100 ft from Subsurface Disposal Field
	114 Seepage Control System		173 100 ft from Graves
	115 Wet Spots, seeps or Settlement		174 100 ft from Livestock or Poultry Yards or Buildings
	116 Road Maintenance		175 100 ft from Other Contaminants that may drain into the soil
	117 Up Stream Slope Rip Rap System		176 50 ft from buried sewers
	118 Rodent Burrows		177 50 ft from septic tanks
	119 Access Control		178 50 ft from pits, Sumps or holes
	DAM ABUTMENTS		179 50 ft from an Existing Well
	120 Erosion Control		180 10 ft from the right of way of any federal, state, or county road
	121 Seepage		181 3 ft from any building other than a well house
	122 Relief Wells		182 15 ft from an Overhead Power Line
	INTAKES		183 25 ft from a High Voltage Overhead Power Line
	123 Adequacy of Water Withdrawal Levels		POWER SUPPLY To WELLS
	124 Capacity of Water Inlets		184 Subject to flood damage?
	125 Water Inlets Screened		185 Meter 4 ft above Maximum Flood
	126 Condition of Control Valves		186 Connected to two independent power sources
	127 Intake Tower Condition		187 Auxiliary Power Supply
	128 Safety Cable on Intake Hoses		WELLS
	129 Floats Properly Anchored		188 Constructed to maintain protection of water-bearing formations
	130 Wench and Cable Condition		189 Adequate Number of Wells
	131 Discharge Pipe Capacity		190 Adequately of well capacities
	132 Vandalism Control		191 Unserviceable or Defective Casing, Screens, fixtures, seals or well head parts repaired or replaced
	133 Intake Protected From Flood Damage		192 Approved Maintenance, Repair or Replacement Material
	134 Zebra Mussel Control Program		193 Approved Well Casing Used
	WATER SOURCES (Rivers & Streams)		194 No Cross Connections
	135 Capacity of Source		195 Gravel pack & screen Capacity (0.1 fps)
	136 Carryover Storage Capacity		196 Well Vent Capacity (1½ inch) & Sanitary Construction
	137 Quality of Water		197 Well Vent Screened & extended above the well head
	138 Cofferdam Condition		198 Draw down measuring equipment
	Raw Water Pumping		199 Top well seal condition. Water tight & all entrances sealed?
	139 Protected from Flood Damage		200 Joint sealed between Line shaft pump base and top of well casing
	140 Ability to Operate During a Flood		201 Pitless Unit (No pitless adapters)
	141 Security Controls		202 Well piping, condition, freeze protection & capacity
	142 Physical Condition of Station		203 Sample tap on each well
	143 Station Sized for Pump Maintenance		204 Well level testing equipment & records
	144 Station Access		205 Meter: Is each well metered? Are they accurate?
	145 Station Heating and Venting		206 Discharge piping equipped w/ check valve, shut off valve & pressure gauge
	146 Station Drains and Sumps		207 Is approved oil used for oil lubricated line shaft pumps
	147 Station Lighting (interior & exterior)		208 Valve vault adequately sized, drained and provided with safe access
	148 Power Supply		209 Records of monthly tests for static water level, pumping water level, draw down, well yield & daily gallons pumped
	149 Hoist ways, Eye bolts, Lifts, etc.		WELL HOUSE
	150 Servicing Equipment		210 Protected from flood & weather damage
	151 Adequate Number of Pumps		211 Ability to Operate During a Flood
	152 Pumping Capacity		212 Security Controls
	153 Telemetry & Pump Controls		213 Physical condition of structure & house keeping
	154 Pressure Gauges (suction & discharge)		214 House adequately sized for pump maintenance
	155 Metering		215 Can you get into the well house during a flood?
	156 Condition of Pumps, Piping & Appurtenances		216 Condition of stairs (Stairs preferred over ladders)
	157 Condition of Transmission Main		217 Condition of doors (Regular doors instead of trap doors)
	158 Capacity of Transmission Main		218 Condition of access road into the well
	159 Transmission Main Flooding		219 House Heating and Venting
	160 Records: daily gallons pumped		220 House Lighting
	Ground Water		
	161 Safety equipment		
	162 Well Site Surface Drainage		
	TOP OF WELL AT LEAST:		
	162 4 ft above Maximum Flood		
	163 12 in above Well House Floor		
	164 18 in above Ground Surface		

C ok NA	ITEM	C ok NA	ITEM
	<p align="center">WELL HOUSE (continued)</p> <p>221 House Drains and Sumps</p> <p>222 Hoist ways, Eye bolts, Lifts, etc.</p> <p>223 Servicing Equipment (Can the well be pumped to waste)</p> <p>224 Pump Capacity & condition</p> <p>225 Telemetry & Pump Controls</p> <p>226 Condition of Pump Piping & appurtenances</p> <p align="center">ABANDONED WELLS</p> <p>227 Any unplugged abandoned system wells</p> <p>228 Plugging affidavits submitted to DGLS</p> <p align="center">WATER TREATMENT FACILITIES</p> <p>229 Condition of finished water transmission main</p> <p>230 Capacity of finished water transmission main</p> <p>231 Transmission Main Flooding</p> <p>232 Records: daily gallons of water treated, rate & hours of operation</p> <p align="center">AERATION</p> <p>233 Capacity & efficiency</p> <p>234 Can it be by-passed for maintenance</p> <p>235 Side access & drainage for cleaning</p> <p>236 Access for routine cleaning of inlet distributor</p> <p>237 Condition of air screens</p> <p>238 Type & condition of media or trays</p> <p>239 Ease of access for cleaning trays & air screens</p> <p>240 Condition of fan and drive motor</p> <p>241 Condition of support structure</p> <p>242 Condition of paint</p> <p align="center">RAPID (Flash) MIXING FACILITIES</p> <p>233 Rapid or flash mixing Detention <30 seconds</p> <p>234 Capacity and condition of mixer & controls</p> <p>235 Can mixer be easily pulled for maintenance</p> <p>236 Any chemical build up in chamber or effluent piping</p> <p>237 Appropriate influent & effluent arrangements</p> <p align="center">FLOCCULATION</p> <p>238 Flocculation chamber capacity (detention & flow through velocity)</p> <p>239 Provisions for draining and cleaning</p> <p>240 Mixer condition, capacity & accessibility for maintenance.</p> <p>241 Variable speed controls (mixer settings recorded)</p> <p>242 Condition & adequacy of Influent & effluent facilities.</p> <p>243 Velocity in effluent piping between 0.5 to 3.0 fps</p> <p>244 Any short circuiting through basin</p> <p>245 Effectiveness of baffles</p> <p>246 Condition of structure</p> <p align="center">SEDIMENTATION</p> <p>247. Ability to remove settling units from service and continue plant operation.</p> <p align="center">CONVENTIONAL</p> <p>248 Pre-sedimentation condition & capacity</p> <p>249 Pre-sedimentation turbidity reduction</p> <p>250 Pre-sedimentation frequency of cleaning</p> <p>251 Pre-sedimentation water fowl control</p> <p>252 Regular sedimentation purpose & capacity</p> <p>253 Condition of structure & length to width ratio</p> <p>254 Ability to remove units for maintenance while continuing operation</p> <p>255 Condition & adequacy of Influent and effluent facilities</p> <p>256 Short circuiting through basin</p> <p>257 Adequacy of sludge removal</p> <p>258 Condition of sludge removal equipment</p> <p>259 Adequacy of sludge removal lines</p> <p>260 Cross connection between sludge sewers and settling basin.</p> <p>261 Records: influent & effluent turbidity, pH, alkalinity, iron and manganese & effluent temperature & disinfection levels</p>		<p align="center">HIGH RATE TREATMENT UNITS</p> <p align="center">CONTRA FLOW AND ACCELATOR UNITS</p> <p>262 Size and capacity of units</p> <p>263 Condition of effluent launders & interior metal works</p> <p>264 Does water flow evenly into the launders</p> <p>265 Sludge scraper drive condition</p> <p>266 Sludge scraper speed control</p> <p>267 Mixer speed, circulation rate, Record settings</p> <p>268 Condition of sludge blow off valves</p> <p>269 Size and condition of sludge blow off timers</p> <p>270 Adequacy and use of sludge sampling taps</p> <p>271 Adequacy of sludge removal lines</p> <p>272 Records: daily settled solids tests on all sample taps, influent & effluent turbidities, pH, alkalinity, hardness, iron and manganese & effluent disinfection levels</p> <p align="center">PULSATOR UNITS</p> <p>273 Size and capacity of units</p> <p>274 Ability to remove units for major maintenance while continuing operation</p> <p>275 Condition of effluent launders & other interior works</p> <p>276 Does water flow evenly into the launders</p> <p>277 Size & condition of vacuum chamber</p> <p>278 Number & condition of vacuum release valves</p> <p>279 Number & condition of compressors & air system</p> <p>280 Adequacy of pulse controls</p> <p>281 Condition of sludge blow off valves</p> <p>282 Size and condition of sludge blow off timers</p> <p>283 Adequacy and use of sludge sampling taps</p> <p>284 Adequacy of sludge removal lines</p> <p>285 Ability to vary pulse magnitude</p> <p>286 Condition of pulse magnitude indicator</p> <p>287 Records: daily settled solids tests on all sample taps, influent & effluent turbidities, pH, alkalinity, hardness; pulse height & frequency</p> <p align="center">FILTRATION (GENERAL)</p> <p>288 Appropriate type (pressure, gravity, constant rate)</p> <p>289 Adequate number (filter rates, with one out of service)</p> <p>290 Ability to take a filter out of service & operate plant</p> <p>291 Does influent arrangement provide even loading between filters</p> <p>292 Appropriate media type & size</p> <p>293 Condition & depth of media</p> <p>294 Condition & adequacy of support gravel</p> <p>295 Type & condition of underdrains</p> <p>296 Condition of headloss indicators or markings</p> <p>297 Ability to determine head loss for each filter</p> <p>298 Condition of rate -of-flow controllers</p> <p>299 Rate-of-flow indicators or ability to determine each filter rate</p> <p>300 Ability to filter to waste</p> <p>301 Filter to waste rate control</p> <p>302 Filter depth or side wall height adequate</p> <p>303 Condition of filter valves</p> <p>304 Can valves with remote operators be operated manually in case of a power or compressor failure</p> <p>305 Condition of filter piping</p> <p>306 Ability to remove & replace valves & fittings</p> <p>307 Adequate method of back washing</p> <p>308 Adequate method of determining backwash rate & gallons used</p> <p>309 Hours of filter run between backwashes</p> <p>310 Condition of filter structure</p> <p>311 Adequate filter lighting</p> <p>312 Condition of pneumatic system for valve operators</p> <p>313 Condition of wash water troughs</p> <p>314 Adequate freeboard above filter media</p> <p>315 Surface wash method & rate adequate</p> <p>316 Adequate safe access to filters for surface washing</p>

C ok NA	ITEM	C ok NA	TEM
	<p>GENERAL FILTRATION (continued)</p> <p>317 Condition of mechanical surface washing facilities</p> <p>318 Condition of air water washing facilities</p> <p>319 Can filters be washed with water alone at an adequate rate if air compressor is out of service</p> <p>320 Sources of contamination (roof drains, roof leaks, filter curbs, etc.)</p> <p>321 Records: daily headloss, headloss when washed gallons filtered, wash water used, influent & effluent turbidity; applied chlorine residual; influent & effluent iron & manganese</p> <p>PRESSURE FILTERS</p> <p>322 Air release valves on top of filters</p> <p>323 Condition of paint</p> <p>324 Ability to get around the filters for painting</p> <p>325 Accessible manhole for inspection and repairs</p> <p>326 Side wall manhole for filter media removal</p> <p>327 Influent & effluent sampling taps</p> <p>328 Adequate free board to wash water trough</p> <p>ION EXCHANGE SOFTENING</p> <p>329 Size, capacity & number of units</p> <p>330 Does influent arrangement provide even loading between units</p> <p>331 Metered by pass</p> <p>332 Method of deciding when to regenerate</p> <p>333 Regeneration method</p> <p>334 Percent salt solution & salinometer readings</p> <p>335 Brine rate & brine curves</p> <p>336 Exchange capacity</p> <p>337 Depth & type of Resin</p> <p>338 Rate-of-flow indicators or ability to determine rate through each unit</p> <p>339 Adequate freeboard above resin</p> <p>340 Underdrains & supporting gravel</p> <p>341 Brine distribution facilities</p> <p>342 Cross connection control</p> <p>343 Air release valves on top of softeners</p> <p>344 Condition of paint</p> <p>345 Ability to get around the softeners for painting</p> <p>346 Accessible manhole for inspection and repairs</p> <p>347 Side wall manhole for resin removal</p> <p>348 Influent & effluent sampling taps</p> <p>349 Ability to take a unit out of service & operate plant</p> <p>350 Method of back washing & rate</p> <p>351 Ability to determine head loss for each softener</p> <p>352 Records: daily gallons treated, gallons bypassed, gallons between regeneration, gallons of wash water, gallons of brine used, influent & effluent hardness</p> <p>BRINE PUMP OR EDUCTOR</p> <p>353 Condition</p> <p>354 Capacity</p> <p>355 Rate of operation</p> <p>356 Meter</p> <p>BRINE & SALT STORAGE</p> <p>357 Salt dissolving & wet salt storage tanks covered</p> <p>358 Constructed of non-corrosive material</p> <p>359 Capacity adequate for regeneration</p> <p>360 Salt storage for 30 days of operation</p> <p>361 Salt Storage enclosed & separate from other areas</p> <p>362 Non-corrosive brine piping</p> <p>GENERAL CHEMICAL FEEDING</p> <p>363 Redundant or stand by feeders provided for essential chemicals</p> <p>364 Chemical contact material & solution piping appropriate for the chemicals fed</p> <p>365 Feeders operate at no less than 20% & are accurate through out the feed range</p>		<p>GENERAL CHEMICAL FEEDING</p> <p>366 All automatic feed controls provided with manual overrides & controls</p> <p>367 Incompatible chemicals are not fed, stored or handled together</p> <p>368 Separate feeder used for each chemical fed</p> <p>369 Separate fed lines used for each chemical fed</p> <p>370 All feed lines marked as to the chemical fed</p> <p>371 Adequate room provided for safe loading & maintenance of each feeder</p> <p>372 Feed area adequately vented</p> <p>370 Hose bibs & floor drains provided for clean up</p> <p>371 Accurate raw water meter provided to determine chemical feed rates</p> <p>372 Adequate heating & ventilation</p> <p>373 Adequate lighting</p> <p>374 Appropriate chemical application points & mixing</p> <p>375 Records: daily pounds of each chemical fed & feed rates</p> <p>DRY CHEMICAL FEEDERS</p> <p>376 Condition of feeder shell & structure</p> <p>377 Feeder weighed off daily</p> <p>378 Feeder capacity & accuracy</p> <p>379 Are chemicals completely enclosed to prevent dust</p> <p>380 Solution water metered</p> <p>381 Adequate solution agitation</p> <p>382 Condition of solution pump(s) or ejectors (if any)</p> <p>383 Solution line plugging or freezing problems</p> <p>384 Accuracy & condition of flow splitter (if any)</p> <p>385 Reduced pressure backflow preventer</p> <p>386 No direct connection between solution tank & drains or sewers</p> <p>SOLUTION FEEDERS</p> <p>387 Physical condition of feeder</p> <p>388 Feeder capacity, accuracy & range</p> <p>389 Scales provided for each solution feed tank</p> <p>390 Method of daily checking feeder accuracy</p> <p>391 Scales available to weigh chemicals to make up the feed solution</p> <p>392 Method available to measure solution water</p> <p>393 No cross connection between make up water & solution tanks</p> <p>394 Siphoning prevention</p> <p>395 Solution line plugging problems</p> <p>396 Appropriate chemical application points & mixing</p> <p>397 No direct connection between solution tank & drains or sewers</p> <p>398 Appropriate safety equipment provided</p> <p>399 Active solution tanks, carboys & drums properly vented & labeled</p> <p>POWDERED ACTIVATED CARBON FEEDING</p> <p>400 Room enclosed and separate</p> <p>401 Access to the room should be from the outside</p> <p>402 All openings between the room & the rest of the plant sealed</p> <p>403 All electrical components in the carbon room are dust, water & explosion proof & static free.</p> <p>404 Dust control provisions adequate</p> <p>405 Controls for dry feeders should be located outside of the feed room</p> <p>406 Adequate solution mixing & agitation</p> <p>CHLORINATORS & GAS FEEDERS</p> <p>407 Separate, enclosed room (all forms of chlorine)</p> <p>408 Access to the room from the outside only</p> <p>409 Inspection window provided on interior wall</p> <p>410 No pressure gas lines outside the chlorine room</p> <p>411 All openings between the room & the rest of the plant sealed</p>

C ok NA	ITEM	C ok NA	TEM
	CHLORINATORS & GAS FEEDERS		460 Vibrators provided & operating properly
	412 Lights, heater & electric receptacles & wiring sealed		461 Flexible connection between bulk tank & feeder or chemical transfer system
	413 Room is adequately lighted		462 Operating area below bulk tank adequate
	414 Door is equipped with panic hardware		463 Floors smooth, impervious, slip-proof & well drained
	415 Is size of room adequate to properly store & handle all gas cylinders both full & empty		464 Area adequately vented
	416 All gas cylinders are restrained in position		465 Adequate heating
	417 Scales are provided to weigh all active cylinders		466 Adequate lighting
	418 Condition & capacity of exhaust fan		467 Dust control provisions & house keeping
	419 Fan inlet unobstructed & near the floor.		468 Hose bibs & floor drains provided for clean up
	420 Exhaust fan discharges to a safe area		469 Capacity equal to 1½ truck loads or 30 days which ever is greater
	421 Separate switches for the fan & lights		470 Condition of pneumatic loading system & controls
	373 Fan & light switches located outside of the room		471 Drainage diverted around stand alone silos
	374 Safe feed rate from cylinders		472 Adequate safe access for loading
	422 Air inlet adequately sized & unobstructed		LIQUID BULK CHEMICAL STORAGE
	423 Separate safe heating system provided for room		470 Capacity equal to 1½ truck loads or 30 days which ever is greater
	424 Heater can keep the room at least 60 °F		471 Condition of bulk tank & structure
	425 Cylinders & gas lines protected from excessive heat		472 Tank, piping & transfer pumps made of material appropriate for the chemical stored
	426 56% ammonia hydroxide for leak detection		473 For essential chemicals duplicate storage tanks, transfer pumps & piping provided
	427 Proper self contained gas mask provided		474 Containment structure provided around each tank capable of handling catastrophic failure.
	428 Gas mask in good condition & operators trained in its use		475 Drains in containment structure valved shut.
	429 Have emergency chlorine leak procedures.		476 If no drains, is a sump & sump pump provided?
	430 Nothing is stored in or near the room that is incompatible with chlorine (oil, gas, other petroleum products, etc)		477 Tanks anchored to prevent floating
	431 Chlorine leak detector provided		478 Tank completely covered & vented to prevent contamination
	432 Vented feeders properly vented & vent screened		479 Chemicals subject to freezing housing in a heated building or equipped with an internal heating system
	CHLORAMINES		480 Transfer pump capacity & condition.
	433 Ammonia must be stored separate from all chlorine of any form		481 Method of determining liquid level in the tank
	434 Ammonia day tanks or cylinders must be located in a dedicated room separate from the rest of the plant		482 Method & procedure for removing chemical from the tank
	435 Feed rate of ammonia verses chlorine residual		483 Method for determining the daily amount of chemical fed
	436 Method of controlling ammonia & chlorine feed rates		484 Vents, manways, over flow piping & access ladders & walk ways
	437 Does system convert to free chlorine for set periods each year		485 Safety equipment provided & emergency plans to handle leaks.
	CARBON DIOXIDE		486 Adequate safe access for loading
	438 Small CO ₂ cylinders & feeders in a room separate & enclosed		HIGH SERVICE PUMPING
	439 Capacity of feeder, evaporator, storage & controls		487 Protected from Flooding
	440 Condition of bulk storage		488 Ability to Operate During a Flood
	441 Adequate contact time or is there a carryover problem		489 Room Sized for Pump Maintenance
	442 Contact chamber vented for CO ₂ to escape outside		490 Pump room access & ability to remove pumps
	443 Records: effluent pH, alkalinity, Hardness & turbidity; pounds of chemical fed daily		491 Heating and Venting
	GENERAL CHEMICAL STORAGE		492 Drains and Sumps
	444 Dry storage conditions		493 Lighting
	445 At least 30 days of chemical supply		494 Hoist ways, Eye bolts, Lifts, etc.
	446 Chemical sacks must be on skids off of the floor		495 Servicing Equipment
	447 Area adequately vented		496 Adequate Number of Pumps
	448 Adequate heating		497 Pumping capacity & actual pumping rates
	449 Adequate lighting		498 Telemetry & Pump Controls
	450 Dust control provisions		499 Water hammer or surge control
	451 Carts, elevators & other appropriate means provided for moving & lifting chemical containers		500 Pressure Gauges (suction & discharge)
	452 Floors smooth, impervious, slip-proof & well drained		501 Metering
	453 Adequate room provided for safe storage, handling & rotating of the chemical		502 Condition of Pumps, Piping & Appurtenances
	454 Provisions for disposing of empty bags, drums, barrels or other containers		503 Condition of Transmission Main & valves
	455 Appropriate safety equipment provided (respirators)		504 Capacity of Transmission Main
	DRY BULK CHEMICAL STORAGE		505 Transmission Main Flooding
	456 Condition of bulk tank & structure		506 Records: daily gallons pumped, daily hours of operation of each pump, rate of flow of each pump
	457 Condition of ladders, lights & other external appurtenances		FINISHED WATER STORAGE
	458 Condition & operation of bag house & vents		507 Total capacity = to or > than average days usage
	459 Any chemical bridging problems		508 Capacity to provide fire flow
			509 Date last inspected & report of inspection

C ok NA	ITEM	C ok NA	TEM
	<p style="text-align: center;">PLANT CLEARWELL</p> <p>510 Capacity adequate (backwash plus contact time)</p> <p>511 Adequately sized overflows provided</p> <p>512 Provisions for handling overflow water</p> <p>513 Clearwells adequately vented outside of plant</p> <p>514 Vents & overflows screened</p> <p>515 Type & condition of roof & is roof drainage adequate</p> <p>516 Approved drains or sumps provided</p> <p>517 General condition of structure</p> <p>518 Inspection schedule</p> <p>519 Adequate drainage around clearwell</p> <p>520 Protected from contamination</p> <p>521 Water tight access hatches curbed w/ overlapping lids</p> <p>522 All pipe & other openings into clearwell sealed</p> <p>523 Bottom of clearwell above maximum flood</p> <p>524 No cross connections</p> <p>525 Influent & effluent designed to prevent short circuiting</p> <p>526 Water level indicators and controls</p> <p style="text-align: center;">GROUND STORAGE TANKS & BASINS</p> <p>528 Capacity adequate</p> <p>529 Elevation of maximum & low water levels adequate</p> <p>530 Bottom above maximum flood & water table</p> <p>531 At least 50% of water depth above grade.</p> <p>532 Top at least 2 ft above ground surface (concrete tanks)</p> <p>533 Water tight access hatches curbed w/ overlapping locked lids</p> <p>534 Water tight properly drained roof that excludes birds, animals, insects & dust.</p> <p>535 Located at least 50 ft from a sewer</p> <p>536 Protected from trespass, vandalism, cattle & sabotage</p> <p>537 Adequately sized overflow</p> <p>538 Overflow opens downward & is screened</p> <p>539 Overflow discharge 12 to 24 in. above ground</p> <p>540 Provisions for handling overflow water adequate</p> <p>541 Approved drains or sumps provided</p> <p>542 Can drain storage without causing low pressures</p> <p>543 Adequately sized & screened sanitary vents</p> <p>544 General condition of structure</p> <p>545 Condition of coating on metal structures</p> <p>546 Concrete foundation of metal tanks above ground level so no metal is touching soil or vegetation</p> <p>547 Condition of grout between metal tank & foundation</p> <p>548 All operating valves & controls located outside of structure</p> <p>549 Inspection schedule</p> <p>550 Area around storage mowed & kept up</p> <p>551 Condition of ladders & other appurtenances</p> <p>552 Water level indicators and controls</p> <p style="text-align: center;">ELEVATED TANKS & STANDPIPES</p> <p>553 Capacity adequate</p> <p>554 Elevation of maximum water level adequate</p> <p>555 Adequately sized overflow provided</p> <p>556 Provisions for handling overflow water</p> <p>557 Overflow discharge 12 to 24 in. above ground</p> <p>558 Overflow screened or fitted with flap valve</p> <p>559 Adequately sized and constructed screened roof vent</p> <p>560 Two access ways provided in the tank</p> <p>561 Water tight access hatches curbed w/ overlapping locking lids</p> <p>562 Concrete column foundations above ground level so no metal is touching soil or vegetation</p> <p>563 Condition of grout between tank feet & foundation</p> <p>564 Water tight properly drained roof that excludes birds, animals, insects & dust.</p> <p>565 Draining device provided on line to drain tower</p> <p>566 Can drain for maintenance w/o causing low pressures</p>		<p>567 Size & condition of fill pipe</p> <p>568 Provisions to keep piping from freezing</p> <p>569 General condition of paint & structure</p> <p>570 Is paint type that is high in Lead or chromium</p> <p>571 Condition of ladders & other appurtenances</p> <p>572 Area around storage mowed & kept up</p> <p>573 Site sloped so water does not stand around foundations</p> <p>574 Protected from trespass, vandalism, cattle & sabotage</p> <p>575 Inspection schedule & latest inspection report</p> <p>576 Condition of valve vault</p> <p style="text-align: center;">HYDROPNEUMATIC TANKS</p> <p>577 Capacity [35 gal per capita]</p> <p>578 On pedestals above ground surface</p> <p>579 Housed to prevent freezing</p> <p>580 Housing sized to allow maintenance</p> <p>581 Pressure gauge provided</p> <p>582 Water level site glass provided</p> <p>583 Air blow-off provided</p> <p>580 Method for adding air</p> <p>581 General condition of facilities</p> <p>582 Properly piped & valved</p> <p>583 Pump sized to meet maximum hourly demand [6 times the average daily demand]</p> <p>584 Pump cycle time</p> <p style="text-align: center;">BOOSTER PUMPING</p> <p>585 Protected from Flood Damage</p> <p>586 Ability to Operate During a Flood</p> <p>587 Security Controls</p> <p>588 Physical Condition of Station</p> <p>589 Floor drainage adequate</p> <p>590 Station Sized for Pump Maintenance</p> <p>591 Station Access (safety, ability to remove pumps)</p> <p>592 Station Heating and Venting</p> <p>593 Station Drains and Sumps</p> <p>594 Station Lighting (interior & exterior)</p> <p>595 Power Supply</p> <p>596 Hoist ways, Eye bolts, Lifts, etc.</p> <p>597 Servicing Equipment</p> <p>598 Adequate Number Pumps</p> <p>599 Pumping Capacity and actual pumping rate</p> <p>600 Telemetry & Pump Controls</p> <p>601 Pressure Gauges (suction & discharge)</p> <p>602 Metering (gallons pumped recorded daily)</p> <p>603 Condition of Pump Piping & Appurtenances</p> <p>604 Condition of Transmission Main</p> <p>605 Capacity of Transmission Main</p> <p>606 Transmission Main Flooding</p> <p>607 Access road safety & condition</p> <p style="text-align: center;">WATER DISTRIBUTION SYSTEM</p> <p>608 Low pressure areas</p> <p>609 Submitting low pressure reports</p> <p>610 Methods for notifying public during low pressures</p> <p>611 Adequate hydrants, clean outs & valves to flush system</p> <p>612 Individual records on valves & hydrants</p> <p>613 Adequate plans on entire system</p> <p>614 Adequate main sizes</p> <p>615 ISO reports on systems providing fire protection</p> <p>616 Review hydrant flow records</p> <p>617 Hydrant maintenance program</p> <p>618 Meter testing & change out program</p> <p>619 Owner supervised program</p> <p>620 Main replacement program</p> <p>621 10 CSR 60-4.080(6) main repair procedures</p> <p>622 Trench box, work lights, traffic barricades, etc.</p> <p>623 Cross connection control program</p> <p>624 Backflow device records</p>

C ok NA	ITEM	C ok NA	TEM
	<p>625 10 CSR 60-4.080(7) Storage covered & vented</p> <p>626 10 CSR 60-4.080(6) Storage disinfection procedures</p> <p>627 10 CSR 60-4.080(5) Water loss (< or > 10%)</p> <p>628 10 CSR 60-10.010(2) Main & sewer separation</p> <p>629 Does the system have a properly certified operator</p> <p>TECHNICAL, MANAGERIAL & FINANCIAL CAPACITY</p> <p>Technical Capacity Items</p> <p>630 Does the system have all equipment needed to perform job duties, including safety equipment</p> <p>631 System required to maintain an updated distribution map</p> <p>632 System must be aware of and planning for upcoming new regulations.</p> <p>633 Required approvals obtained for construction</p> <p>634 Engineering certification that construction was done according to approved plans and specifications.</p> <p>Managerial Capacity Items</p> <p>530 Confirm that a permanent organization exists as the continuing operating authority</p> <p>631 Does the organization own the facility and have the authority to lay necessary water lines</p> <p>632 Does the bylaws of the organization provide for the proper operation, maintenance and modernization of the facility</p> <p>633 Power to regulate use of the facility</p> <p>634 Power to levy assessments and enforce them on members</p> <p>635 Power to convey the facility to a higher continuing operating authority 10 CSR 60-3.020(6)(A)</p> <p>636 Are public meetings held for changes in rate structure or service fees with advanced notice to customers</p> <p>637 Organizational chart with the name, position, address and phone number of all positions that have drinking water functions</p> <p>638 Are the written rate structure and service fees publicly displayed</p> <p>639 Designated person to person to handle customer complains with publicly displayed telephone number and office hours</p> <p>640 Publicly displayed written consumer complaint procedures for receiving, investigating, resolving and recording complaints</p> <p>641 Designated person as the contact for regulatory issues and compliance actions</p> <p>642 An operational management plan describing procedures for reliable system operation</p> <p>643 Emergency operation plan</p> <p>644 Evidence of ability to meet applicable MCLs</p> <p>Financial Capacity Items</p> <p>645 Standard accounting principles and practices used according to either generally accepted accounting principles and practices or the NARUC uniform accounts.</p> <p>646 A system for water fee collection including measures to collect for non-payment</p> <p>647 An annual budget of revenues and expenditures with an annual comparison of planned to actual budget</p> <p>648 Written rate structure and service fees</p> <p>649 Do annual revenues cover system costs</p> <p>650 An annually updated 5-year plan for budget and capital improvement plan including operating, equipment replacement and debt service reserves</p> <p>651 Operating reserve at least 1/10 of annual operations and maintenance expenses</p>		<p>652 Equipment replacement reserve at least equal to the most expensive mechanical equipment item</p> <p>653 Does Debt Service Reserve equal or exceed the required bonding agreement</p> <p>654 Planning for financial impacts of future regulations</p> <p>655 Annual anniversary audit completed</p> <p>SECURITY CHECKLIST</p> <p>656 Are all facilities locked and alarms set</p> <p>657 Are "Authorized Personnel Only" signs posted</p> <p>658 Are emergency phone numbers posted outside each building or fence for use by public</p> <p>659 Are all facilities thoroughly inspected daily</p> <p>660 Where possible, is every access to water (outside clarifier, clearwell, reservoir, etc.) locked or fenced.</p> <p>661 Protection provided to prevent speeding vehicle from hitting plant</p> <p>662 Are outside stored chemicals protected from vandalism and accidents</p> <p>663 Are smoke detectors provided within all facilities</p> <p>664 Is a finished water chlorine residual low-level alarm provided for those systems that feed chlorine</p> <p>665 Are the distribution and number of keys, access cards & codes tracked and controlled</p> <p>666 Are local police departments provided with access keys and familiar with the facilities</p> <p>667 Are keys always removed from unattended equipment</p> <p>668 Is perimeter of treatment plant property, storage tanks and wellheads adequately fenced and gates locked</p> <p>669 Fencing constructed to discourage climbing</p> <p>670 Is fence away from any structure or landscaping located outside the fence that could help a person climb the fence</p> <p>671 Is perimeter of treatment plant site property illuminated</p> <p>672 Treatment plant units lighted to eliminate dark areas</p> <p>673 Is lighting provided in parking lots and areas with limited staffing</p> <p>674 Are entrance doors & their locks sturdy and well fitting</p> <p>675 Are doors provided with panic bar releases</p> <p>676 Are visitor entrances tamper proof with door bells</p> <p>677 Are unmanned facilities provided with an alarm system</p> <p>678 Does the required emergency operation plan address security issues?</p> <p>679 Is an emergency contact list and numbers provided at each telephone</p> <p>680 Threat check lists provided at every telephone</p> <p>681 Are MSDS sheets and chemical response information provided for all stored chemicals</p> <p>682 Have all critical customers been identified & are call lists available?</p> <p>683 Plan for isolation and alternate water source in place for critical customers.</p> <p>684 Is there a backup electrical power supply</p> <p>685 Are emergency connections to other water supply sources functional and exercised regularly</p> <p>686 Do designated employees log drivers name, id, date, time & type of material delivered and supplier's name</p> <p>687 Employee inspect & verify chemicals & supplies when delivered</p> <p>688 Procedures in place to control use and to detect and report unauthorized use of fire hydrants</p> <p>689 Contracts in place or plan for tanker trucks or bottled water companies to provide water</p> <p>690 Customer complaints investigated and logged</p> <p>691 SCADA servicing</p>

CHEMICAL TEST RESULTS

	pH	Cl _r	Cl _t	Alk	Hard	Turb	F	Fe	Mn	Al	P	Color	Temp
Raw													
Primary													
Applied													
Finished													

FINISHED WATER STABILITY:

	pH	Alkalinity	Ca Hardness	TDS/Conductivity	Chlorides	Sulfates
Treated Sample						
Tap Sample						

Results: The water is _____ mg/l (scale forming or corrosive)

CT CALCULATIONS FOR SURFACE WATER PLANTS:

	UNIT NAME	RESIDUAL TYPE	DISINFECTANT RESIDUAL	DETENTION TIME (T ₁₀)	CT _{calc}	pH	CT _{99.9}	CT _{calc} ÷ CT _{99.9}
CT 1	Primary Rapid Mix							
CT 2	Primary Floc							
CT 3	Primary Settling							
CT 4	Recarbonation Basin							
CT 5	2nd Rapid Mix							
CT 6	2nd Floc							
CT 7	2nd Settling							
CT 8	2nd Recarbonation							
CT 9	Filters							
CT 10	Clearwell							
CT _{other}								
CT _{credit}								0.83
TOTAL								

COMMENTS

