. // Model SP.C.SSV.1

**. glm MR `subpart\_sig\_sub\_vars' `covariates' ib(freq).state ib(freq).time, family(poisson) link(log) vce(cl mineid) exposure(hours) iter(50) eform**

Iteration 0: log pseudolikelihood = -20797.281

Iteration 1: log pseudolikelihood = -19301.826

Iteration 2: log pseudolikelihood = -19287.587

Iteration 3: log pseudolikelihood = -19287.082

Iteration 4: log pseudolikelihood = -19286.978

Iteration 5: log pseudolikelihood = -19286.957

Iteration 6: log pseudolikelihood = -19286.952

Iteration 7: log pseudolikelihood = -19286.951

Iteration 8: log pseudolikelihood = -19286.951

Iteration 9: log pseudolikelihood = -19286.951

Iteration 10: log pseudolikelihood = -19286.951

Generalized linear models No. of obs = 28,337

Optimization : ML Residual df = 27,977

Scale parameter = 1

Deviance = 21661.15772 (1/df) Deviance = .7742488

Pearson = 334387.4583 (1/df) Pearson = 11.95223

Variance function: V(u) = u [Poisson]

Link function : g(u) = ln(u) [Log]

AIC = 1.386664

Log pseudolikelihood = -19286.95099 BIC = -265156.9

(Std. Err. adjusted for 1,544 clusters in mineid)

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| Robust

MR | IRR Std. Err. z P>|z| [95% Conf. Interval]

------------------+----------------------------------------------------------------

sp47\_41\_ss | .7267797 .3699316 -0.63 0.531 .2680034 1.970903

sp47\_44\_ss | 1.40e-08 1.42e-08 -17.81 0.000 1.91e-09 1.02e-07

sp48\_11\_ss | 1.083866 .075795 1.15 0.249 .945041 1.243083

sp48\_25\_ss | .7942115 .1455569 -1.26 0.209 .5545422 1.137464

sp48\_26\_ss | 1.402918 .1171687 4.05 0.000 1.191083 1.652429

sp48\_27\_ss | 1.031824 .133238 0.24 0.808 .8011082 1.328985

sp48\_28\_ss | 1.105842 .1954892 0.57 0.569 .7820222 1.56375

sp48\_4\_ss | 1.772869 1.291435 0.79 0.432 .4252304 7.39144

sp48\_5\_ss | 1.340628 .223001 1.76 0.078 .9676509 1.857367

sp48\_6\_ss | .9819944 .1636558 -0.11 0.913 .7083546 1.361342

sp48\_7\_ss | 1.165744 .093242 1.92 0.055 .9965975 1.363598

sp48\_8\_ss | 1.292423 .2793284 1.19 0.235 .8461289 1.974117

sp71\_701\_ss | 1.15e-07 1.30e-07 -14.16 0.000 1.26e-08 1.05e-06

sp72\_503\_ss | .8456524 .2256732 -0.63 0.530 .5012309 1.426744

sp72\_610\_ss | .9737679 .2332138 -0.11 0.912 .6089699 1.557095

sp72\_620\_ss | 1.940185 .4538023 2.83 0.005 1.226734 3.068571

sp72\_630\_ss | 1.026727 .0193581 1.40 0.162 .9894781 1.065378

sp75\_100\_ss | .8191008 .330006 -0.50 0.620 .3718761 1.804166

sp75\_1001\_1\_ss | 1.234918 .7599064 0.34 0.732 .3697016 4.125007

sp75\_1001\_ss | 1.829095 .6345004 1.74 0.082 .9267455 3.610042

sp75\_1003\_1\_ss | .7603914 .238352 -0.87 0.382 .411358 1.405576

sp75\_1100\_2\_ss | 1.057892 .0266229 2.24 0.025 1.006978 1.111381

sp75\_1101\_20\_ss | 5.44e-08 5.51e-08 -16.49 0.000 7.45e-09 3.97e-07

sp75\_1102\_ss | 1.039307 .1288113 0.31 0.756 .8151666 1.325078

sp75\_1103\_4\_ss | 1.09238 .0673319 1.43 0.152 .9680717 1.23265

sp75\_1104\_ss | .7964395 .1564047 -1.16 0.246 .5419933 1.170339

sp75\_1106\_2\_ss | 1.135942 .0937806 1.54 0.123 .9662353 1.335455

sp75\_1106\_3\_ss | 1.066935 .0473574 1.46 0.144 .9780393 1.163911

sp75\_1106\_4\_ss | 1.275144 .1890009 1.64 0.101 .953663 1.704998

sp75\_1106\_5\_ss | .9661125 .0973918 -0.34 0.732 .7929025 1.17716

sp75\_1106\_6\_ss | .8747908 .3733793 -0.31 0.754 .3789599 2.019366

sp75\_1106\_ss | .7825419 .0952433 -2.01 0.044 .6164641 .9933617

sp75\_1107\_14\_ss | 3.081955 .5259333 6.60 0.000 2.205817 4.306091

sp75\_1400\_1\_ss | .9314974 .4533176 -0.15 0.884 .3588727 2.417814

sp75\_1400\_2\_ss | 1.336104 .3901877 0.99 0.321 .7538079 2.368209

sp75\_1400\_3\_ss | .8925622 .1405248 -0.72 0.470 .6555797 1.215211

sp75\_1400\_4\_ss | .4592129 .0927226 -3.85 0.000 .309131 .682159

sp75\_1400\_ss | .9551689 .1073331 -0.41 0.683 .7663549 1.190503

sp75\_1401\_ss | .8432 .2956773 -0.49 0.627 .4240797 1.676539

sp75\_1403\_10\_ss | 1.027278 .0278322 0.99 0.321 .9741509 1.083302

sp75\_1403\_11\_ss | 1.897655 .3664851 3.32 0.001 1.299657 2.770804

sp75\_1403\_3\_ss | .3642727 .1845338 -1.99 0.046 .1349658 .9831721

sp75\_1403\_4\_ss | 1.26636 .2468601 1.21 0.226 .8642248 1.855614

sp75\_1403\_5\_ss | .9662259 .0188441 -1.76 0.078 .9299891 1.003875

sp75\_1403\_6\_ss | 1.006242 .0297415 0.21 0.833 .9496065 1.066256

sp75\_1403\_7\_ss | 1.020098 .0841556 0.24 0.809 .8678003 1.199124

sp75\_1403\_8\_ss | .9701917 .0262373 -1.12 0.263 .9201065 1.023003

sp75\_1403\_9\_ss | .7158399 .1234177 -1.94 0.053 .5105762 1.003624

sp75\_1404\_1\_ss | .5499875 .3466319 -0.95 0.343 .1599114 1.891586

sp75\_1404\_ss | 2.070824 .8367052 1.80 0.072 .9380366 4.571582

sp75\_1405\_1\_ss | .9339681 .5928126 -0.11 0.914 .2691866 3.24049

sp75\_1405\_ss | .9482842 .0246505 -2.04 0.041 .9011802 .9978504

sp75\_1431\_ss | .4438479 .5023562 -0.72 0.473 .0482866 4.079825

sp75\_1432\_ss | 1.00e-06 8.18e-07 -16.89 0.000 2.01e-07 4.97e-06

sp75\_1433\_ss | 1.019243 .2631549 0.07 0.941 .6144818 1.690622

sp75\_1434\_ss | 1.055323 .2079558 0.27 0.785 .7172206 1.55281

sp75\_1435\_ss | 1.295406 .575067 0.58 0.560 .5426678 3.092275

sp75\_1437\_ss | 2.058124 .9515116 1.56 0.118 .8316566 5.093296

sp75\_150\_ss | .741446 .3679966 -0.60 0.547 .2802908 1.961328

sp75\_151\_ss | 1.325133 .6631405 0.56 0.574 .4969237 3.533694

sp75\_153\_ss | .2306011 .1233957 -2.74 0.006 .0807941 .6581776

sp75\_155\_ss | .7486855 .1069184 -2.03 0.043 .5659017 .9905078

sp75\_156\_ss | 4.396521 1.498267 4.35 0.000 2.25441 8.574041

sp75\_1600\_2\_ss | .9232523 .1934427 -0.38 0.703 .6123137 1.392088

sp75\_1712\_10\_ss | .5067351 .2027914 -1.70 0.089 .2312794 1.110261

sp75\_1712\_6\_ss | 1.207593 .236579 0.96 0.336 .8225493 1.772879

sp75\_1720\_ss | .9904754 .0542401 -0.17 0.861 .8896731 1.102699

sp75\_1721\_ss | 2.39e-06 1.69e-06 -18.32 0.000 5.98e-07 9.54e-06

sp75\_1725\_ss | .9968395 .0081096 -0.39 0.697 .981071 1.012861

sp75\_1726\_ss | 1.118147 .1573049 0.79 0.427 .8486893 1.473156

sp75\_1727\_ss | 3.42e-07 3.46e-07 -14.71 0.000 4.70e-08 2.49e-06

sp75\_1728\_ss | 2.004373 .5888221 2.37 0.018 1.126995 3.564798

sp75\_1729\_ss | .5063727 .1678027 -2.05 0.040 .2644829 .9694892

sp75\_1730\_ss | .7041636 .1885084 -1.31 0.190 .4166797 1.189994

sp75\_1731\_ss | 1.006507 .0095437 0.68 0.494 .9879743 1.025387

sp75\_1903\_ss | .88934 .1614316 -0.65 0.518 .6231019 1.269336

sp75\_1909\_ss | 1.065297 .021836 3.09 0.002 1.023348 1.108966

sp75\_1910\_ss | .9935021 .0362591 -0.18 0.858 .9249178 1.067172

sp75\_1911\_ss | .8852855 .0505015 -2.14 0.033 .7916373 .9900121

sp75\_1912\_ss | .7934389 .2670428 -0.69 0.492 .4102323 1.534607

sp75\_1913\_ss | 1.587784 .1843006 3.98 0.000 1.264704 1.993397

sp75\_1914\_ss | 1.019102 .0157214 1.23 0.220 .9887502 1.050386

sp75\_1915\_ss | 1.047075 .4413608 0.11 0.913 .4583332 2.392073

sp75\_202\_ss | 1.005315 .0055895 0.95 0.340 .9944192 1.01633

sp75\_208\_ss | 1.026709 .0323108 0.84 0.402 .9652947 1.092031

sp75\_211\_ss | 1.003876 .0324638 0.12 0.905 .9422231 1.069564

sp75\_212\_ss | 1.01796 .0703666 0.26 0.797 .8889782 1.165655

sp75\_214\_ss | 1.034198 .1904101 0.18 0.855 .7209174 1.483616

sp75\_312\_ss | .9899239 .3658711 -0.03 0.978 .4797355 2.042687

sp75\_320\_ss | .942366 .090863 -0.62 0.538 .7800936 1.138394

sp75\_324\_ss | .9934696 .0819685 -0.08 0.937 .8451314 1.167844

sp75\_337\_ss | 1.108248 .0570254 2.00 0.046 1.001932 1.225846

sp75\_340\_ss | 1.027741 .0257409 1.09 0.275 .9785079 1.079451

sp75\_342\_ss | 1.022037 .0207093 1.08 0.282 .982243 1.063443

sp75\_344\_ss | 1.080423 .164969 0.51 0.612 .8009855 1.457348

sp75\_352\_ss | 1.040768 .0914316 0.45 0.649 .8761448 1.236324

sp75\_382\_ss | .9233314 .1545597 -0.48 0.634 .665077 1.281868

sp75\_503\_ss | .992442 .0083942 -0.90 0.370 .9761253 1.009032

sp75\_504\_ss | .430033 .1979001 -1.83 0.067 .1744942 1.059797

sp75\_505\_ss | .4760102 .2987154 -1.18 0.237 .1391404 1.628468

sp75\_506\_1\_ss | 1.001809 .2497164 0.01 0.994 .6146247 1.632902

sp75\_506\_ss | .6746505 .1768998 -1.50 0.133 .4035391 1.127904

sp75\_507\_ss | .9036227 .1068502 -0.86 0.391 .716697 1.139302

sp75\_511\_1\_ss | .4956602 .1082168 -3.21 0.001 .323104 .7603713

sp75\_511\_ss | 1.090414 .0844059 1.12 0.263 .9369199 1.269056

sp75\_512\_1\_ss | 3.963391 1.072667 5.09 0.000 2.331817 6.736579

sp75\_512\_2\_ss | 1.013747 .0699994 0.20 0.843 .8854298 1.160661

sp75\_512\_ss | .9942559 .0130892 -0.44 0.662 .9689296 1.020244

sp75\_513\_1\_ss | .1785528 .2447532 -1.26 0.209 .0121611 2.621564

sp75\_513\_ss | .9144621 .139217 -0.59 0.557 .6785463 1.232401

sp75\_514\_ss | 1.086603 .0553197 1.63 0.103 .9834123 1.200621

sp75\_515\_ss | .9239051 .0385564 -1.90 0.058 .851344 1.002651

sp75\_516\_1\_ss | .8625088 .4865101 -0.26 0.793 .2855167 2.605527

sp75\_516\_2\_ss | .9997281 .6036437 -0.00 1.000 .3061398 3.264706

sp75\_516\_ss | 1.072598 .0722184 1.04 0.298 .9399947 1.223908

sp75\_517\_1\_ss | .8998922 .3628809 -0.26 0.794 .4082668 1.983522

sp75\_517\_ss | .9981899 .0098097 -0.18 0.854 .9791473 1.017603

sp75\_518\_1\_ss | .8471875 .107232 -1.31 0.190 .6610578 1.085724

sp75\_518\_ss | 1.076598 .0370068 2.15 0.032 1.006455 1.151629

sp75\_519\_ss | .6401016 .2479053 -1.15 0.249 .2996309 1.367449

sp75\_520\_ss | .9699767 .0791027 -0.37 0.709 .8266941 1.138093

sp75\_523\_1\_ss | .9693636 .0548647 -0.55 0.582 .8675806 1.083088

sp75\_523\_2\_ss | .9505338 .046413 -1.04 0.299 .8637832 1.045997

sp75\_523\_ss | .8967389 .0590496 -1.66 0.098 .7881611 1.020275

sp75\_600\_1\_ss | .5861888 .2669646 -1.17 0.241 .2400931 1.431184

sp75\_600\_ss | 1.072949 .2457934 0.31 0.759 .6848316 1.681024

sp75\_601\_1\_ss | 1.042246 .0452782 0.95 0.341 .9571752 1.134877

sp75\_601\_2\_ss | .316853 .0847021 -4.30 0.000 .1876343 .5350613

sp75\_601\_3\_ss | .836835 .395571 -0.38 0.706 .331343 2.113498

sp75\_601\_ss | .9911193 .0407037 -0.22 0.828 .9144678 1.074196

sp75\_602\_ss | 1.073386 .0718154 1.06 0.290 .9414685 1.223787

sp75\_603\_ss | 1.075398 .090524 0.86 0.388 .9118374 1.268297

sp75\_604\_ss | 1.029031 .0130935 2.25 0.025 1.003685 1.055016

sp75\_605\_ss | 1.011979 .0514276 0.23 0.815 .9160398 1.117966

sp75\_606\_ss | 1.006508 .0286844 0.23 0.820 .9518291 1.064328

sp75\_607\_ss | .9600719 .115033 -0.34 0.734 .7591286 1.214206

sp75\_700\_1\_ss | .455191 .2771508 -1.29 0.196 .1380146 1.501282

sp75\_700\_ss | .8731649 .1001371 -1.18 0.237 .6973937 1.093238

sp75\_701\_1\_ss | .9284438 .0921053 -0.75 0.454 .7643867 1.127712

sp75\_701\_2\_ss | .9414115 .1694276 -0.34 0.737 .6615873 1.33959

sp75\_701\_3\_ss | 1.215191 .145392 1.63 0.103 .9611746 1.536339

sp75\_701\_4\_ss | 1.112358 .5060588 0.23 0.815 .456034 2.713266

sp75\_701\_5\_ss | .8989121 .0891918 -1.07 0.283 .7400471 1.09188

sp75\_701\_ss | .9898979 .0302726 -0.33 0.740 .9323078 1.051045

sp75\_703\_2\_ss | 1.093733 .4724397 0.21 0.836 .4690657 2.550288

sp75\_703\_3\_ss | 1.079847 .1952252 0.42 0.671 .7576594 1.539043

sp75\_703\_ss | 1.053438 .06111 0.90 0.369 .9402225 1.180286

sp75\_704\_ss | 1.375858 .705913 0.62 0.534 .503323 3.760976

sp75\_705\_1\_ss | 1.122871 .163812 0.79 0.427 .8436274 1.494544

sp75\_705\_8\_ss | 9.57e-07 7.27e-07 -18.24 0.000 2.16e-07 4.24e-06

sp75\_705\_ss | 1.105679 .3056666 0.36 0.716 .6431511 1.900837

sp75\_706\_ss | .9709537 .1477909 -0.19 0.846 .7205023 1.308464

sp75\_800\_2\_ss | 2.27e-06 2.27e-06 -12.96 0.000 3.17e-07 .0000162

sp75\_800\_3\_ss | .161949 .1329716 -2.22 0.027 .0323953 .8096081

sp75\_800\_4\_ss | 11.79356 5.372275 5.42 0.000 4.829481 28.7998

sp75\_800\_ss | 1.058036 .1115059 0.54 0.592 .8605827 1.300793

sp75\_801\_ss | 1.364878 .4001346 1.06 0.289 .7683361 2.424579

sp75\_802\_ss | .3554948 .166335 -2.21 0.027 .1420884 .8894223

sp75\_803\_2\_ss | 3.623259 .3395214 13.74 0.000 3.015343 4.353737

sp75\_803\_ss | 1.124773 .1446094 0.91 0.360 .8742346 1.447111

sp75\_804\_ss | .9532574 .0947685 -0.48 0.630 .7844903 1.158331

sp75\_805\_ss | .4886194 .2135605 -1.64 0.101 .2074612 1.150813

sp75\_806\_ss | 3.64e-08 2.31e-08 -26.95 0.000 1.05e-08 1.26e-07

sp75\_807\_ss | 1.018911 .0329456 0.58 0.562 .9563427 1.085574

sp75\_808\_ss | 1.531933 .2439165 2.68 0.007 1.12127 2.093

sp75\_809\_ss | 1.00759 .100091 0.08 0.939 .8293313 1.224165

sp75\_810\_ss | 1.277023 .2258922 1.38 0.167 .9028796 1.806207

sp75\_811\_ss | .8311468 .2080336 -0.74 0.460 .5088906 1.357472

sp75\_812\_ss | 1.243844 .2760889 0.98 0.326 .8050625 1.921773

sp75\_814\_ss | .983921 .1951926 -0.08 0.935 .6669555 1.451522

sp75\_815\_ss | 1.468451 .2695745 2.09 0.036 1.024703 2.104364

sp75\_816\_ss | 1.125529 .1244307 1.07 0.285 .9062618 1.397847

sp75\_818\_ss | 1.358912 .2983145 1.40 0.162 .8837548 2.089541

sp75\_819\_ss | .6466208 .235898 -1.20 0.232 .3163131 1.32185

sp75\_820\_ss | 1.150839 .0683649 2.37 0.018 1.024353 1.292944

sp75\_821\_ss | 1.28412 .4976671 0.65 0.519 .6007835 2.744688

sp75\_825\_ss | 1.316654 .1722196 2.10 0.035 1.018905 1.701413

sp75\_827\_ss | 1.204277 .4349739 0.51 0.607 .5933077 2.444402

sp75\_831\_ss | 1.426238 .1665223 3.04 0.002 1.134512 1.792979

sp75\_900\_2\_ss | 1.124713 .4994076 0.26 0.791 .4710658 2.685355

sp75\_900\_3\_ss | 1.180945 .246148 0.80 0.425 .7848938 1.776839

sp75\_900\_4\_ss | .9613138 .3216068 -0.12 0.906 .4989952 1.85197

sp75\_900\_ss | .9926916 .0513789 -0.14 0.887 .89693 1.098677

sp75\_901\_ss | 1.029812 .1724167 0.18 0.861 .7417292 1.429785

sp75\_902\_1\_ss | 2.146623 .4436343 3.70 0.000 1.431664 3.218624

sp75\_902\_2\_ss | 1.115149 .2149155 0.57 0.572 .7643395 1.62697

sp75\_902\_4\_ss | 1.078595 .0923882 0.88 0.377 .9119012 1.27576

sp75\_902\_ss | 1.059113 .068306 0.89 0.373 .9333519 1.20182

sp75\_903\_ss | 1.192135 .0967252 2.17 0.030 1.016863 1.397618

sp75\_904\_ss | 1.000883 .0214399 0.04 0.967 .9597312 1.043799

sp75\_905\_ss | 1.277075 .2507574 1.25 0.213 .8691214 1.876516

sp75\_907\_ss | .6747152 .2347401 -1.13 0.258 .3411764 1.334326

sp77\_103\_ss | .0003043 .0001548 -15.92 0.000 .0001123 .0008246

sp77\_1103\_ss | .9293261 .0949495 -0.72 0.473 .7606776 1.135365

sp77\_1104\_ss | 1.049494 .0228944 2.21 0.027 1.005568 1.09534

sp77\_1106\_ss | 1.28e-07 1.28e-07 -15.84 0.000 1.80e-08 9.11e-07

sp77\_1111\_ss | .9153888 .2218206 -0.36 0.715 .5692973 1.471879

sp77\_1112\_ss | .879103 .1118017 -1.01 0.311 .6851513 1.127958

sp77\_1403\_ss | .8416979 .2871965 -0.51 0.614 .431238 1.642841

sp77\_1433\_ss | .651555 .16168 -1.73 0.084 .4006174 1.059674

sp77\_1434\_ss | .7477949 .1963416 -1.11 0.268 .4469823 1.25105

sp77\_1437\_ss | .3272225 .0635972 -5.75 0.000 .2235672 .4789367

sp77\_1438\_ss | .55495 .6298311 -0.52 0.604 .0600063 5.132283

sp77\_1605\_ss | 1.004549 .02688 0.17 0.865 .9532224 1.058638

sp77\_1606\_ss | 1.036563 .0423989 0.88 0.380 .9567061 1.123085

sp77\_1710\_ss | .9324241 .0336747 -1.94 0.053 .8687047 1.000817

sp77\_1802\_ss | .3672038 .0772124 -4.76 0.000 .2431778 .5544859

sp77\_1906\_ss | 1.905456 .8149391 1.51 0.132 .8240453 4.406025

sp77\_1915\_ss | 7.13e-08 3.74e-08 -31.39 0.000 2.55e-08 1.99e-07

sp77\_1916\_ss | 1.518633 .2876492 2.21 0.027 1.047669 2.201313

sp77\_200\_ss | 1.01198 .0336079 0.36 0.720 .9482081 1.080042

sp77\_202\_ss | .9484777 .0430752 -1.16 0.244 .8677003 1.036775

sp77\_203\_ss | 1.121153 .250853 0.51 0.609 .7231235 1.738271

sp77\_204\_ss | .9294586 .0377212 -1.80 0.071 .8583903 1.006411

sp77\_205\_ss | .9932518 .0156597 -0.43 0.668 .9630287 1.024423

sp77\_206\_ss | 1.054313 .0689366 0.81 0.419 .9274996 1.198466

sp77\_207\_ss | 1.176183 .1027259 1.86 0.063 .9911343 1.395782

sp77\_208\_ss | 1.086178 .0516059 1.74 0.082 .9895985 1.192182

sp77\_210\_ss | .95668 .1130462 -0.37 0.708 .7588996 1.206005

sp77\_216\_ss | 1.231716 .432243 0.59 0.553 .6191567 2.450308

sp77\_315\_ss | 1.576976 1.201104 0.60 0.550 .3544112 7.016859

sp77\_400\_ss | 1.020829 .0121149 1.74 0.082 .997358 1.044852

sp77\_401\_ss | 1.053997 .1565648 0.35 0.723 .787768 1.410198

sp77\_402\_ss | 1.006754 .0842937 0.08 0.936 .8543857 1.186296

sp77\_403\_1\_ss | .5515349 .1120332 -2.93 0.003 .3703979 .821254

sp77\_403\_ss | 3.953025 1.50539 3.61 0.000 1.874024 8.338421

sp77\_404\_ss | .9655899 .0197199 -1.71 0.086 .9277028 1.005024

sp77\_405\_ss | .9972361 .1368419 -0.02 0.984 .7620704 1.304971

sp77\_408\_ss | .7596542 .1940338 -1.08 0.282 .4604673 1.253237

sp77\_409\_ss | 6.66e-08 6.60e-08 -16.68 0.000 9.56e-09 4.64e-07

sp77\_410\_ss | 1.008149 .0281567 0.29 0.771 .9544463 1.064874

sp77\_411\_ss | 2.160513 .2791153 5.96 0.000 1.677222 2.783063

sp77\_412\_ss | .9557557 .0748011 -0.58 0.563 .8198391 1.114205

sp77\_413\_ss | .3347502 .0450764 -8.13 0.000 .2570992 .4358538

sp77\_500\_ss | 1.113661 .1323319 0.91 0.365 .8822833 1.405717

sp77\_501\_ss | .8861331 .0878561 -1.22 0.223 .7296358 1.076197

sp77\_502\_1\_ss | 2.309037 .3995215 4.84 0.000 1.644946 3.241232

sp77\_502\_2\_ss | 1.025455 .1403976 0.18 0.854 .7841089 1.341086

sp77\_502\_ss | .9856601 .0202668 -0.70 0.482 .9467277 1.026194

sp77\_503\_1\_ss | 1.336357 .4891425 0.79 0.428 .6521685 2.738325

sp77\_503\_ss | .9468502 .2573327 -0.20 0.841 .5558322 1.612942

sp77\_504\_ss | .8627349 .074461 -1.71 0.087 .7284701 1.021746

sp77\_505\_ss | .9423354 .0906447 -0.62 0.537 .7804177 1.137847

sp77\_506\_1\_ss | 1.227353 .336914 0.75 0.455 .7166565 2.101979

sp77\_506\_ss | 1.007784 .1596614 0.05 0.961 .7387762 1.374744

sp77\_507\_ss | 1.075023 .1647391 0.47 0.637 .7961183 1.451637

sp77\_508\_1\_ss | 2.361732 1.370065 1.48 0.138 .7576003 7.36243

sp77\_508\_ss | 1.177663 .4102933 0.47 0.639 .5949295 2.331183

sp77\_509\_ss | .8216127 .0950354 -1.70 0.089 .6549516 1.030683

sp77\_510\_ss | .5946918 .0839139 -3.68 0.000 .4510069 .7841527

sp77\_511\_ss | 1.286472 .2712356 1.19 0.232 .8510121 1.944755

sp77\_512\_ss | .9962126 .046559 -0.08 0.935 .9090133 1.091777

sp77\_513\_ss | 1.067476 .0824303 0.85 0.398 .9175474 1.241903

sp77\_514\_ss | 2.65e-08 2.72e-08 -16.98 0.000 3.54e-09 1.99e-07

sp77\_515\_ss | 2.93e-07 2.09e-07 -21.11 0.000 7.26e-08 1.19e-06

sp77\_516\_ss | .9172079 .0664397 -1.19 0.233 .79581 1.057125

sp77\_600\_ss | 1.011974 .3136751 0.04 0.969 .5512236 1.857851

sp77\_601\_ss | .8139559 .1534839 -1.09 0.275 .5624628 1.177899

sp77\_602\_ss | .8676284 .1708827 -0.72 0.471 .589775 1.276383

sp77\_603\_ss | 1.260055 .6634174 0.44 0.661 .4489859 3.536275

sp77\_604\_ss | .7307148 .241434 -0.95 0.342 .3823879 1.396342

sp77\_605\_ss | 1.74e-07 1.10e-07 -24.69 0.000 5.06e-08 5.99e-07

sp77\_606\_ss | 6.20e-07 6.21e-07 -14.28 0.000 8.73e-08 4.41e-06

sp77\_700\_1\_ss | 1.70116 .5176565 1.75 0.081 .9369746 3.088606

sp77\_700\_ss | 1.072492 .3502615 0.21 0.830 .5654616 2.03416

sp77\_701\_1\_ss | .8086542 .2239232 -0.77 0.443 .4699569 1.39145

sp77\_701\_2\_ss | .6086985 .2762514 -1.09 0.274 .2500883 1.481532

sp77\_701\_3\_ss | .418885 .0543064 -6.71 0.000 .3248933 .5400685

sp77\_701\_4\_ss | .9728432 .2715828 -0.10 0.921 .5628828 1.681387

sp77\_701\_ss | 1.046505 .0709986 0.67 0.503 .9162051 1.195335

sp77\_704\_1\_ss | 1.483106 .4381585 1.33 0.182 .8311875 2.646337

sp77\_704\_8\_ss | .7801021 .1848102 -1.05 0.295 .4903402 1.241096

sp77\_704\_9\_ss | 9.574957 2.060329 10.50 0.000 6.28024 14.59814

sp77\_704\_ss | .4858916 .2667124 -1.31 0.189 .1656928 1.42487

sp77\_705\_ss | .7663374 .2541931 -0.80 0.422 .4000162 1.468123

sp77\_800\_1\_ss | .7435511 .3374592 -0.65 0.514 .3054884 1.809785

sp77\_800\_2\_ss | 1.185964 .8220545 0.25 0.806 .3048308 4.614072

sp77\_800\_ss | 1.42534 .3210536 1.57 0.116 .9166173 2.216405

sp77\_801\_1\_ss | 1.66e-06 1.68e-06 -13.20 0.000 2.31e-07 .000012

sp77\_802\_ss | .49808 .2983092 -1.16 0.245 .1539923 1.611014

sp77\_803\_ss | 4.36e-07 3.72e-07 -17.15 0.000 8.18e-08 2.33e-06

sp77\_804\_ss | 2.56951 2.342734 1.04 0.301 .4303018 15.34361

sp77\_805\_ss | .8741671 .2623292 -0.45 0.654 .4854639 1.574099

sp77\_807\_1\_ss | .691451 .2405425 -1.06 0.289 .3496591 1.367345

sp77\_807\_2\_ss | .8541979 .2495402 -0.54 0.590 .4818298 1.51434

sp77\_807\_3\_ss | 1.468169 .0987183 5.71 0.000 1.286892 1.674982

sp77\_807\_ss | .9448237 .4119913 -0.13 0.896 .4019606 2.220844

sp77\_808\_ss | .9507909 .3702438 -0.13 0.897 .4432226 2.039614

sp77\_809\_ss | .7776748 .1216978 -1.61 0.108 .5722609 1.056822

sp77\_810\_ss | 1.263748 .3812412 0.78 0.438 .6996391 2.282689

sp77\_900\_1\_ss | 1.240123 .9538174 0.28 0.780 .2746498 5.599515

sp77\_900\_2\_ss | 3.28e-07 3.39e-07 -14.45 0.000 4.33e-08 2.48e-06

sp77\_900\_ss | .6462968 .1323724 -2.13 0.033 .4326052 .9655446

sp77\_901\_1\_ss | 1.71e-07 1.86e-07 -14.32 0.000 2.02e-08 1.44e-06

sp77\_901\_ss | 1.171187 .2771179 0.67 0.504 .7365822 1.862222

sp77\_902\_3\_ss | 7.84e-07 4.47e-07 -24.63 0.000 2.56e-07 2.40e-06

sp77\_902\_ss | 1.522898 .3346062 1.91 0.056 .9900285 2.342578

sp77\_903\_ss | .3751173 .2083662 -1.77 0.078 .1262847 1.114252

sp77\_904\_ss | .9234147 .0859227 -0.86 0.392 .769473 1.108154

mine\_time | .998809 .0018129 -0.66 0.511 .9952622 1.002369

onsite\_insp\_hours | .9997076 .0001247 -2.34 0.019 .9994632 .9999521

|

state |

AL | 1.115719 .0955184 1.28 0.201 .9433708 1.319555

AR | 2.03201 .1300522 11.08 0.000 1.792451 2.303585

CO | .7186837 .1209953 -1.96 0.050 .5166925 .9996395

IL | 1.168037 .0963591 1.88 0.060 .9936547 1.373024

IN | .921707 .1438996 -0.52 0.602 .6787358 1.251656

MD | 1.025845 .1774241 0.15 0.883 .7309082 1.439794

MT | .8793025 .0447914 -2.53 0.012 .7957531 .9716241

NM | .8315423 .0443789 -3.46 0.001 .748956 .9232354

OH | 1.156082 .1179709 1.42 0.155 .9465182 1.412045

OK | .8514101 .2727028 -0.50 0.616 .4544674 1.595052

PA | .9278477 .0828112 -0.84 0.401 .778944 1.105216

TN | 1.323347 .1756701 2.11 0.035 1.020186 1.716595

UT | .6163461 .0760403 -3.92 0.000 .4839602 .7849459

VA | .6963188 .0574575 -4.39 0.000 .592339 .8185513

WV | 1.02423 .0550212 0.45 0.656 .9218738 1.137952

WY | 1.110443 .0588752 1.98 0.048 1.000843 1.232045

|

time |

2000 | 1.105052 .1236354 0.89 0.372 .8874592 1.375995

2000.25 | 1.198891 .1368418 1.59 0.112 .958569 1.499464

2000.5 | 1.40948 .1359834 3.56 0.000 1.16664 1.702868

2000.75 | 1.082485 .1168363 0.73 0.463 .8760906 1.337504

2001 | 1.087839 .1047507 0.87 0.382 .900742 1.313799

2001.5 | 1.218233 .1306322 1.84 0.066 .9873143 1.503161

2001.75 | 1.012707 .1017373 0.13 0.900 .8317086 1.233094

2002 | 1.063335 .1144737 0.57 0.568 .8610608 1.313126

2002.25 | .9796199 .1070223 -0.19 0.851 .7907967 1.213529

2002.5 | 1.181062 .1213546 1.62 0.105 .9656313 1.444555

2002.75 | 1.091925 .1148924 0.84 0.403 .8884421 1.342011

2003 | .90749 .1019401 -0.86 0.388 .7281565 1.130991

2003.25 | .966965 .1079462 -0.30 0.763 .7769403 1.203466

2003.5 | 1.101558 .1193351 0.89 0.372 .8908286 1.362137

2003.75 | .836249 .0942941 -1.59 0.113 .6704332 1.043075

2004 | 1.021027 .1119118 0.19 0.849 .8236443 1.265712

2004.25 | .993627 .1073069 -0.06 0.953 .8040772 1.227861

2004.5 | .9852998 .1072768 -0.14 0.892 .7959611 1.219677

2004.75 | .9065806 .0977409 -0.91 0.363 .7338987 1.119894

2005 | .7647493 .0789938 -2.60 0.009 .6245904 .9363601

2005.25 | .9660927 .0968908 -0.34 0.731 .7936894 1.175945

2005.5 | .8806044 .104797 -1.07 0.285 .6974016 1.111933

2005.75 | .7892048 .0858175 -2.18 0.029 .6377211 .9766718

2006 | .8206405 .0861452 -1.88 0.060 .6680357 1.008106

2006.25 | .8132011 .0958761 -1.75 0.079 .6454189 1.0246

2006.5 | .9411467 .1003858 -0.57 0.570 .763599 1.159977

2006.75 | .7320722 .0822356 -2.78 0.005 .587403 .9123713

2007 | .7824546 .0847192 -2.27 0.023 .6328438 .967435

2007.25 | .7044476 .0921254 -2.68 0.007 .5451692 .9102614

2007.5 | .7881668 .0868551 -2.16 0.031 .6350628 .9781819

2007.75 | .7911684 .0932883 -1.99 0.047 .6279166 .9968638

2008 | .6764445 .0794715 -3.33 0.001 .5373156 .8515985

2008.25 | .6887126 .0792537 -3.24 0.001 .5496495 .862959

2008.5 | .7909563 .0927008 -2.00 0.045 .6286239 .9952085

2008.75 | .649437 .0785187 -3.57 0.000 .5124182 .8230943

2009 | .6282653 .077647 -3.76 0.000 .4931096 .8004656

2009.25 | .5934991 .0725269 -4.27 0.000 .467091 .754117

2009.5 | .7214476 .0875283 -2.69 0.007 .568767 .9151141

2009.75 | .541679 .0635221 -5.23 0.000 .4304499 .68165

2010 | .5809337 .073818 -4.27 0.000 .4528624 .7452241

2010.25 | .6093972 .0746833 -4.04 0.000 .4792735 .7748499

2010.5 | .6861977 .083975 -3.08 0.002 .5398605 .8722018

2010.75 | .5479101 .069819 -4.72 0.000 .4268179 .7033574

2011 | .6326235 .0778366 -3.72 0.000 .4970675 .8051472

2011.25 | .6315699 .0766351 -3.79 0.000 .497893 .801137

2011.5 | .6979835 .0894136 -2.81 0.005 .5430051 .897194

2011.75 | .5776351 .0701474 -4.52 0.000 .4552862 .7328628

2012 | .7306677 .0876924 -2.61 0.009 .5775125 .9244394

2012.25 | .6167108 .0783434 -3.80 0.000 .4807839 .791067

2012.5 | .6983289 .0866911 -2.89 0.004 .5475089 .8906946

2012.75 | .5725755 .0753108 -4.24 0.000 .4424604 .7409538

2013 | .6072201 .079902 -3.79 0.000 .46918 .7858738

2013.25 | .5340694 .0736866 -4.55 0.000 .4075265 .6999058

2013.5 | .7211056 .0992136 -2.38 0.017 .550663 .944304

2013.75 | .5806072 .0767928 -4.11 0.000 .4480226 .7524278

2014 | .5427849 .0810412 -4.09 0.000 .4050774 .7273067

2014.25 | .6055799 .0844707 -3.60 0.000 .4607227 .795982

2014.5 | .6096788 .0797926 -3.78 0.000 .4717358 .7879586

2014.75 | .6286894 .085615 -3.41 0.001 .4814148 .8210185

2015 | .5862577 .080519 -3.89 0.000 .4479 .7673544

2015.25 | .6112468 .0896211 -3.36 0.001 .458578 .8147417

2015.5 | .7686332 .1088662 -1.86 0.063 .5823154 1.014565

2015.75 | .4748459 .0758351 -4.66 0.000 .3472257 .6493718

2016 | .6512146 .099681 -2.80 0.005 .4824267 .8790569

|

\_cons | .0000147 1.33e-06 -123.57 0.000 .0000124 .0000176

ln(hours) | 1 (exposure)

-----------------------------------------------------------------------------------

**. estat gof**

Deviance goodness-of-fit = 21661.16

Prob > chi2(27977) = 1.0000

Pearson goodness-of-fit = 334390.9

Prob > chi2(27977) = 0.0000

**. glm MR `subpart\_sig\_sub\_vars' `covariates' ib(freq).state ib(freq).time, family(nbinomial) link(log) vce(cl mineid) exposure(hours) iter(50) eform**

Iteration 0: log pseudolikelihood = -19925.098

Iteration 1: log pseudolikelihood = -19645.481

Iteration 2: log pseudolikelihood = -19643.767

Iteration 3: log pseudolikelihood = -19643.446

Iteration 4: log pseudolikelihood = -19643.375

Iteration 5: log pseudolikelihood = -19643.357

Iteration 6: log pseudolikelihood = -19643.354

Iteration 7: log pseudolikelihood = -19643.353

Iteration 8: log pseudolikelihood = -19643.353

Iteration 9: log pseudolikelihood = -19643.353

Iteration 10: log pseudolikelihood = -19643.353

Generalized linear models No. of obs = 28,337

Optimization : ML Residual df = 27,970

Scale parameter = 1

Deviance = 15003.56822 (1/df) Deviance = .5364165

Pearson = 304369.3871 (1/df) Pearson = 10.88199

Variance function: V(u) = u+(1)u^2 [Neg. Binomial]

Link function : g(u) = ln(u) [Log]

AIC = 1.412313

Log pseudolikelihood = -19643.35274 BIC = -271742.7

(Std. Err. adjusted for 1,544 clusters in mineid)

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| Robust

MR | IRR Std. Err. z P>|z| [95% Conf. Interval]

------------------+----------------------------------------------------------------

sp47\_41\_ss | .7974561 .3777954 -0.48 0.633 .3151008 2.0182

sp47\_44\_ss | 1.42e-08 1.44e-08 -17.82 0.000 1.94e-09 1.03e-07

sp48\_11\_ss | 1.08055 .0934021 0.90 0.370 .9121526 1.280036

sp48\_25\_ss | .7047554 .1183053 -2.08 0.037 .5071654 .9793259

sp48\_26\_ss | 1.42531 .1433024 3.52 0.000 1.170384 1.735762

sp48\_27\_ss | 1.031293 .1416797 0.22 0.823 .78785 1.34996

sp48\_28\_ss | 1.245507 .2734442 1.00 0.317 .8099715 1.915238

sp48\_4\_ss | 1.692947 1.221514 0.73 0.466 .4115993 6.96325

sp48\_5\_ss | 1.349402 .351053 1.15 0.249 .8103966 2.246908

sp48\_6\_ss | .956327 .1580584 -0.27 0.787 .691708 1.322178

sp48\_7\_ss | 1.273472 .1386129 2.22 0.026 1.028819 1.576302

sp48\_8\_ss | 1.67226 .4925972 1.75 0.081 .9387837 2.978805

sp71\_701\_ss | 9.86e-08 1.13e-07 -14.10 0.000 1.05e-08 9.29e-07

sp72\_503\_ss | .9466215 .2954763 -0.18 0.860 .5134336 1.745293

sp72\_610\_ss | .973606 .2624526 -0.10 0.921 .5740198 1.651352

sp72\_620\_ss | 1.467494 .4242697 1.33 0.185 .8326909 2.586239

sp72\_630\_ss | 1.031264 .020186 1.57 0.116 .9924496 1.071597

sp75\_100\_ss | .939986 .4269942 -0.14 0.892 .3858852 2.289732

sp75\_1001\_1\_ss | .861906 .8720408 -0.15 0.883 .118645 6.261384

sp75\_1001\_ss | 1.823634 .9941122 1.10 0.270 .6265051 5.308242

sp75\_1003\_1\_ss | .7528225 .2652948 -0.81 0.420 .3773366 1.501953

sp75\_1100\_2\_ss | 1.052404 .0285986 1.88 0.060 .9978183 1.109976

sp75\_1101\_20\_ss | 5.20e-08 5.28e-08 -16.53 0.000 7.12e-09 3.80e-07

sp75\_1102\_ss | 1.007863 .1184829 0.07 0.947 .8004528 1.269017

sp75\_1103\_4\_ss | 1.109561 .0667889 1.73 0.084 .9860846 1.2485

sp75\_1104\_ss | .6876793 .1553783 -1.66 0.097 .441632 1.070807

sp75\_1106\_2\_ss | 1.111755 .0960259 1.23 0.220 .9386164 1.316832

sp75\_1106\_3\_ss | 1.095313 .0479862 2.08 0.038 1.005186 1.19352

sp75\_1106\_4\_ss | 1.156896 .1999867 0.84 0.399 .8244254 1.623443

sp75\_1106\_5\_ss | .9518827 .1259215 -0.37 0.709 .7344813 1.233633

sp75\_1106\_6\_ss | .7022301 .3508295 -0.71 0.479 .2637696 1.869537

sp75\_1106\_ss | .7722573 .1322071 -1.51 0.131 .5521283 1.08015

sp75\_1107\_14\_ss | 2.999501 .5374448 6.13 0.000 2.111215 4.261531

sp75\_1400\_1\_ss | .7832611 .3793235 -0.50 0.614 .3031659 2.023638

sp75\_1400\_2\_ss | .9400701 .3435887 -0.17 0.866 .4592534 1.924279

sp75\_1400\_3\_ss | .7977438 .1207552 -1.49 0.135 .5929477 1.073274

sp75\_1400\_4\_ss | .3864323 .0891925 -4.12 0.000 .2458145 .6074904

sp75\_1400\_ss | .8334338 .1001592 -1.52 0.129 .6585317 1.054789

sp75\_1401\_ss | .5362392 .1674927 -2.00 0.046 .290729 .9890742

sp75\_1403\_10\_ss | 1.021995 .0413155 0.54 0.590 .9441429 1.106266

sp75\_1403\_11\_ss | 1.779508 .3636354 2.82 0.005 1.192231 2.656071

sp75\_1403\_3\_ss | .3323618 .1932567 -1.89 0.058 .1063328 1.038855

sp75\_1403\_4\_ss | 1.165035 .2411664 0.74 0.461 .7764924 1.747997

sp75\_1403\_5\_ss | .955549 .0246943 -1.76 0.079 .9083543 1.005196

sp75\_1403\_6\_ss | 1.024741 .0318648 0.79 0.432 .9641524 1.089137

sp75\_1403\_7\_ss | 1.019591 .0908555 0.22 0.828 .856201 1.214162

sp75\_1403\_8\_ss | .9760672 .0391461 -0.60 0.546 .9022803 1.055888

sp75\_1403\_9\_ss | .7068627 .163278 -1.50 0.133 .4494862 1.111614

sp75\_1404\_1\_ss | .5830044 .3975644 -0.79 0.429 .1531854 2.218841

sp75\_1404\_ss | 2.606277 1.342323 1.86 0.063 .9497784 7.151856

sp75\_1405\_1\_ss | 1.653249 1.746266 0.48 0.634 .2085669 13.10482

sp75\_1405\_ss | .9341747 .0266157 -2.39 0.017 .8834387 .9878244

sp75\_1431\_ss | .4739683 .5368853 -0.66 0.510 .0514701 4.364593

sp75\_1432\_ss | 7.78e-07 6.47e-07 -16.90 0.000 1.52e-07 3.97e-06

sp75\_1433\_ss | 1.114105 .4068741 0.30 0.767 .5445844 2.279225

sp75\_1434\_ss | .9562607 .1785915 -0.24 0.811 .6631407 1.378945

sp75\_1435\_ss | .8863763 .5841152 -0.18 0.855 .2436031 3.225176

sp75\_1437\_ss | 3.908296 2.123939 2.51 0.012 1.347123 11.33881

sp75\_150\_ss | .8059598 .4219003 -0.41 0.680 .2888884 2.248519

sp75\_151\_ss | 1.049969 .8358451 0.06 0.951 .2205786 4.997922

sp75\_153\_ss | .1726004 .0947321 -3.20 0.001 .0588651 .5060874

sp75\_155\_ss | .7401454 .1114639 -2.00 0.046 .5509706 .994273

sp75\_156\_ss | 3.9861 1.346576 4.09 0.000 2.055877 7.728573

sp75\_1600\_2\_ss | .9718769 .2280594 -0.12 0.903 .6135774 1.539406

sp75\_1712\_10\_ss | .5562679 .2345486 -1.39 0.164 .2434319 1.271131

sp75\_1712\_6\_ss | 1.095254 .3134403 0.32 0.751 .6250543 1.919164

sp75\_1720\_ss | 1.003363 .0644682 0.05 0.958 .8846404 1.13802

sp75\_1721\_ss | 2.21e-06 1.53e-06 -18.76 0.000 5.67e-07 8.62e-06

sp75\_1725\_ss | 1.004104 .0095701 0.43 0.667 .9855215 1.023038

sp75\_1726\_ss | 1.206444 .1939921 1.17 0.243 .8803122 1.653398

sp75\_1727\_ss | 4.01e-07 4.07e-07 -14.53 0.000 5.50e-08 2.93e-06

sp75\_1728\_ss | 2.568917 .8791071 2.76 0.006 1.313594 5.023878

sp75\_1729\_ss | .4737983 .1444702 -2.45 0.014 .2606429 .8612737

sp75\_1730\_ss | .66938 .2120518 -1.27 0.205 .3597675 1.245442

sp75\_1731\_ss | 1.003998 .0107747 0.37 0.710 .9831009 1.02534

sp75\_1903\_ss | 1.123796 .3125177 0.42 0.675 .6515923 1.938202

sp75\_1909\_ss | 1.070178 .0266594 2.72 0.006 1.019181 1.123726

sp75\_1910\_ss | 1.0003 .0441857 0.01 0.995 .9173402 1.090762

sp75\_1911\_ss | .8921769 .0564567 -1.80 0.071 .7881107 1.009985

sp75\_1912\_ss | .7881104 .2593234 -0.72 0.469 .413527 1.502001

sp75\_1913\_ss | 1.792533 .5123195 2.04 0.041 1.023735 3.13868

sp75\_1914\_ss | 1.010035 .020884 0.48 0.629 .9699211 1.051807

sp75\_1915\_ss | 1.001322 .3923557 0.00 0.997 .4645591 2.158274

sp75\_202\_ss | 1.00641 .0059527 1.08 0.280 .9948103 1.018145

sp75\_208\_ss | 1.022029 .0331375 0.67 0.502 .9591017 1.089086

sp75\_211\_ss | .9840707 .0324014 -0.49 0.626 .9225708 1.04967

sp75\_212\_ss | .9793509 .0657935 -0.31 0.756 .858527 1.117179

sp75\_214\_ss | .9242712 .2048651 -0.36 0.722 .5985911 1.427147

sp75\_312\_ss | .9417965 .2439316 -0.23 0.817 .5668787 1.564674

sp75\_320\_ss | .9606065 .0955213 -0.40 0.686 .7905026 1.167314

sp75\_324\_ss | .9482149 .1006516 -0.50 0.616 .7701104 1.16751

sp75\_337\_ss | 1.153907 .0843072 1.96 0.050 .9999539 1.331563

sp75\_340\_ss | 1.038128 .0296521 1.31 0.190 .9816077 1.097902

sp75\_342\_ss | 1.018396 .0222357 0.83 0.404 .9757346 1.062924

sp75\_344\_ss | 1.117801 .2176098 0.57 0.567 .7632297 1.637094

sp75\_352\_ss | 1.058446 .0980757 0.61 0.540 .8826656 1.269232

sp75\_382\_ss | .8841522 .1585475 -0.69 0.492 .6221402 1.256509

sp75\_503\_ss | .9975664 .0097205 -0.25 0.803 .9786954 1.016801

sp75\_504\_ss | .3594129 .1668117 -2.20 0.027 .144721 .8925976

sp75\_505\_ss | .5790572 .369206 -0.86 0.392 .1659574 2.020441

sp75\_506\_1\_ss | 1.111014 .3355026 0.35 0.727 .6147162 2.008002

sp75\_506\_ss | .6192766 .1512209 -1.96 0.050 .3837339 .9993997

sp75\_507\_ss | .8451696 .1140105 -1.25 0.212 .6488131 1.100951

sp75\_511\_1\_ss | .4001193 .0971101 -3.77 0.000 .2486569 .6438409

sp75\_511\_ss | 1.221597 .1117215 2.19 0.029 1.02113 1.461419

sp75\_512\_1\_ss | 3.211836 1.092019 3.43 0.001 1.649476 6.254038

sp75\_512\_2\_ss | 1.034214 .0965014 0.36 0.718 .8613622 1.241753

sp75\_512\_ss | .9992036 .0137956 -0.06 0.954 .9725273 1.026612

sp75\_513\_1\_ss | .3350462 .5219204 -0.70 0.483 .0158176 7.096914

sp75\_513\_ss | .7980364 .1482932 -1.21 0.225 .5544344 1.14867

sp75\_514\_ss | 1.111464 .0572297 2.05 0.040 1.00477 1.229487

sp75\_515\_ss | .951212 .0381991 -1.25 0.213 .8792137 1.029106

sp75\_516\_1\_ss | .8367967 .5011767 -0.30 0.766 .2587116 2.7066

sp75\_516\_2\_ss | 1.020099 .6991387 0.03 0.977 .2662319 3.908633

sp75\_516\_ss | 1.088287 .0757738 1.22 0.224 .9494605 1.247411

sp75\_517\_1\_ss | 1.183508 .4929637 0.40 0.686 .5231455 2.677442

sp75\_517\_ss | .996823 .0097406 -0.33 0.745 .9779133 1.016098

sp75\_518\_1\_ss | .8577465 .116414 -1.13 0.258 .6574053 1.119141

sp75\_518\_ss | 1.101626 .0454387 2.35 0.019 1.016073 1.194383

sp75\_519\_ss | .6556711 .3049489 -0.91 0.364 .26351 1.631455

sp75\_520\_ss | 1.043057 .0846983 0.52 0.604 .889588 1.223003

sp75\_523\_1\_ss | .9570962 .0552376 -0.76 0.447 .8547312 1.071721

sp75\_523\_2\_ss | .9892424 .0528171 -0.20 0.839 .8909552 1.098372

sp75\_523\_ss | .9110868 .0534367 -1.59 0.112 .8121486 1.022078

sp75\_600\_1\_ss | .5651318 .2670187 -1.21 0.227 .2238546 1.426702

sp75\_600\_ss | 1.040159 .2540788 0.16 0.872 .6444326 1.678889

sp75\_601\_1\_ss | 1.020566 .0424091 0.49 0.624 .9407409 1.107165

sp75\_601\_2\_ss | .3389614 .1082893 -3.39 0.001 .1812232 .6339965

sp75\_601\_3\_ss | .8034653 .4239725 -0.41 0.678 .2856309 2.260108

sp75\_601\_ss | .9974024 .0456467 -0.06 0.955 .9118316 1.091003

sp75\_602\_ss | 1.099922 .1108298 0.95 0.345 .9028036 1.340078

sp75\_603\_ss | 1.088113 .1156508 0.79 0.427 .883494 1.340123

sp75\_604\_ss | 1.034477 .0142215 2.47 0.014 1.006976 1.06273

sp75\_605\_ss | 1.042252 .0626909 0.69 0.491 .9263465 1.17266

sp75\_606\_ss | 1.018128 .0335894 0.54 0.586 .9543769 1.086137

sp75\_607\_ss | .9450496 .1216196 -0.44 0.661 .7343658 1.216177

sp75\_700\_1\_ss | .4592165 .2803437 -1.27 0.202 .138795 1.519362

sp75\_700\_ss | .8899707 .1064888 -0.97 0.330 .703924 1.125189

sp75\_701\_1\_ss | 1.008652 .1260155 0.07 0.945 .7895814 1.288504

sp75\_701\_2\_ss | .8746626 .1692671 -0.69 0.489 .5985683 1.278107

sp75\_701\_3\_ss | 1.132792 .181885 0.78 0.437 .826948 1.551751

sp75\_701\_4\_ss | 1.127894 .5417712 0.25 0.802 .4399499 2.891568

sp75\_701\_5\_ss | .7871919 .0945659 -1.99 0.046 .6220498 .9961758

sp75\_701\_ss | 1.026038 .0337732 0.78 0.435 .961934 1.094415

sp75\_703\_2\_ss | 1.19655 .6150872 0.35 0.727 .4368882 3.277113

sp75\_703\_3\_ss | 1.008726 .1878833 0.05 0.963 .7002127 1.45317

sp75\_703\_ss | 1.052397 .0697216 0.77 0.441 .9242453 1.198318

sp75\_704\_ss | 1.460765 .7484873 0.74 0.460 .5350936 3.987778

sp75\_705\_1\_ss | 1.184773 .2356646 0.85 0.394 .8022722 1.74964

sp75\_705\_8\_ss | 8.64e-07 6.50e-07 -18.58 0.000 1.98e-07 3.77e-06

sp75\_705\_ss | 1.429388 .4129317 1.24 0.216 .811426 2.517974

sp75\_706\_ss | .9047857 .1616242 -0.56 0.575 .6375194 1.284098

sp75\_800\_2\_ss | 2.18e-06 2.19e-06 -12.99 0.000 3.05e-07 .0000156

sp75\_800\_3\_ss | .1318859 .1084051 -2.46 0.014 .0263356 .6604702

sp75\_800\_4\_ss | 9.423556 4.471045 4.73 0.000 3.718422 23.88201

sp75\_800\_ss | 1.027461 .1376231 0.20 0.840 .7902263 1.335917

sp75\_801\_ss | 1.286408 .433478 0.75 0.455 .6645862 2.490039

sp75\_802\_ss | .3955421 .2034663 -1.80 0.071 .1443231 1.084051

sp75\_803\_2\_ss | 3.486531 .3145987 13.84 0.000 2.921376 4.161019

sp75\_803\_ss | 1.123261 .1573127 0.83 0.407 .8536306 1.478058

sp75\_804\_ss | .8645901 .0894058 -1.41 0.159 .7059744 1.058843

sp75\_805\_ss | .3440484 .1735838 -2.11 0.034 .1279853 .9248662

sp75\_806\_ss | 3.42e-08 2.14e-08 -27.48 0.000 1.00e-08 1.16e-07

sp75\_807\_ss | 1.006094 .0400481 0.15 0.879 .930585 1.08773

sp75\_808\_ss | 1.546452 .3217515 2.10 0.036 1.028578 2.325068

sp75\_809\_ss | 1.04706 .1118431 0.43 0.667 .8492771 1.290904

sp75\_810\_ss | 1.241343 .2400265 1.12 0.264 .8497734 1.813345

sp75\_811\_ss | .8344027 .229754 -0.66 0.511 .4864028 1.431381

sp75\_812\_ss | 1.213538 .2603209 0.90 0.367 .7970009 1.847771

sp75\_814\_ss | .9399456 .1805019 -0.32 0.747 .6451233 1.369502

sp75\_815\_ss | 1.344993 .3033676 1.31 0.189 .8644274 2.092721

sp75\_816\_ss | 1.092773 .1364618 0.71 0.477 .8555289 1.395806

sp75\_818\_ss | 2.041037 1.60655 0.91 0.365 .4363646 9.546682

sp75\_819\_ss | .4364095 .1783612 -2.03 0.042 .1958875 .9722582

sp75\_820\_ss | 1.154478 .0832227 1.99 0.046 1.002364 1.329677

sp75\_821\_ss | .8876843 .2914673 -0.36 0.717 .4664125 1.689456

sp75\_825\_ss | 1.192477 .213389 0.98 0.325 .8397134 1.693438

sp75\_827\_ss | 1.085248 .4824811 0.18 0.854 .4540466 2.593925

sp75\_831\_ss | 1.328624 .1688808 2.24 0.025 1.035633 1.704503

sp75\_900\_2\_ss | 1.025533 .5142669 0.05 0.960 .3837988 2.740285

sp75\_900\_3\_ss | 1.126198 .2681064 0.50 0.618 .7062768 1.795786

sp75\_900\_4\_ss | 1.121307 .5345412 0.24 0.810 .4404999 2.854323

sp75\_900\_ss | 1.010646 .0526841 0.20 0.839 .9124874 1.119365

sp75\_901\_ss | 1.037073 .2321203 0.16 0.871 .6687926 1.608154

sp75\_902\_1\_ss | 1.625535 .4084637 1.93 0.053 .9933603 2.660026

sp75\_902\_2\_ss | 1.231461 .3289066 0.78 0.436 .7295858 2.078573

sp75\_902\_4\_ss | .9783839 .115527 -0.19 0.853 .7762469 1.233158

sp75\_902\_ss | 1.030247 .0640782 0.48 0.632 .912009 1.163813

sp75\_903\_ss | 1.228898 .0977018 2.59 0.010 1.051579 1.436115

sp75\_904\_ss | .9865385 .0238625 -0.56 0.575 .9408602 1.034435

sp75\_905\_ss | 1.194556 .2529017 0.84 0.401 .7888551 1.808906

sp75\_907\_ss | .6029818 .1887006 -1.62 0.106 .3265309 1.113484

sp77\_103\_ss | .0003197 .0001628 -15.80 0.000 .0001178 .0008675

sp77\_1103\_ss | .9606551 .1095183 -0.35 0.725 .7682937 1.201179

sp77\_1104\_ss | 1.035391 .0251821 1.43 0.153 .9871933 1.085943

sp77\_1106\_ss | 1.52e-07 1.53e-07 -15.65 0.000 2.13e-08 1.09e-06

sp77\_1111\_ss | .8341312 .2570406 -0.59 0.556 .4559671 1.525932

sp77\_1112\_ss | .8570807 .1190186 -1.11 0.267 .6528592 1.125185

sp77\_1403\_ss | .9049422 .3322468 -0.27 0.786 .4406612 1.85839

sp77\_1433\_ss | .4559954 .1775717 -2.02 0.044 .2125638 .978209

sp77\_1434\_ss | 1.103275 .4706973 0.23 0.818 .4781127 2.545877

sp77\_1437\_ss | .2971465 .0712741 -5.06 0.000 .1856949 .4754899

sp77\_1438\_ss | .8690858 .4849991 -0.25 0.801 .2911012 2.594665

sp77\_1605\_ss | 1.005888 .0308582 0.19 0.848 .9471898 1.068225

sp77\_1606\_ss | 1.015946 .0401042 0.40 0.689 .9403071 1.09767

sp77\_1710\_ss | .9206642 .0369826 -2.06 0.040 .8509597 .9960785

sp77\_1802\_ss | .3531971 .0971783 -3.78 0.000 .2059769 .6056419

sp77\_1906\_ss | 1.194465 .800704 0.27 0.791 .3210514 4.443983

sp77\_1915\_ss | 6.55e-08 3.44e-08 -31.48 0.000 2.34e-08 1.84e-07

sp77\_1916\_ss | 1.521587 .3377453 1.89 0.059 .9848189 2.350917

sp77\_200\_ss | 1.010035 .0383555 0.26 0.793 .9375891 1.088079

sp77\_202\_ss | .9248967 .0419792 -1.72 0.085 .8461725 1.010945

sp77\_203\_ss | 1.093051 .235302 0.41 0.679 .7168059 1.666784

sp77\_204\_ss | .9330194 .0459176 -1.41 0.159 .8472268 1.0275

sp77\_205\_ss | 1.014172 .0233519 0.61 0.541 .9694203 1.060989

sp77\_206\_ss | .9948701 .0657465 -0.08 0.938 .8740058 1.132448

sp77\_207\_ss | 1.171564 .1146092 1.62 0.106 .9671563 1.419174

sp77\_208\_ss | 1.111442 .0647036 1.81 0.070 .991593 1.245777

sp77\_210\_ss | .9602005 .1438284 -0.27 0.786 .7159133 1.287844

sp77\_216\_ss | 1.63331 .6689251 1.20 0.231 .7319093 3.644851

sp77\_315\_ss | 1.093371 .9777158 0.10 0.920 .1894981 6.30856

sp77\_400\_ss | 1.019324 .017594 1.11 0.267 .9854171 1.054397

sp77\_401\_ss | 1.083738 .1722244 0.51 0.613 .7936953 1.479771

sp77\_402\_ss | .9996654 .0721012 -0.00 0.996 .8678835 1.151457

sp77\_403\_1\_ss | .5104753 .1316119 -2.61 0.009 .3079754 .846123

sp77\_403\_ss | 4.027566 1.486591 3.77 0.000 1.953713 8.302801

sp77\_404\_ss | .9603873 .0201051 -1.93 0.054 .9217795 1.000612

sp77\_405\_ss | 1.074119 .179151 0.43 0.668 .7746071 1.489441

sp77\_408\_ss | .8883531 .2121064 -0.50 0.620 .556352 1.418475

sp77\_409\_ss | 3.65e-08 3.52e-08 -17.76 0.000 5.52e-09 2.42e-07

sp77\_410\_ss | .9914088 .0319298 -0.27 0.789 .9307619 1.056007

sp77\_411\_ss | 2.428109 .3016497 7.14 0.000 1.903362 3.097526

sp77\_412\_ss | .9560459 .0940711 -0.46 0.648 .7883589 1.159401

sp77\_413\_ss | .2983467 .0479382 -7.53 0.000 .2177462 .408782

sp77\_500\_ss | 1.068738 .1784003 0.40 0.690 .7705192 1.482378

sp77\_501\_ss | .8413421 .1104985 -1.32 0.188 .650398 1.088344

sp77\_502\_1\_ss | 2.110426 .3729813 4.23 0.000 1.492571 2.984045

sp77\_502\_2\_ss | .9836385 .1471512 -0.11 0.912 .7336633 1.318786

sp77\_502\_ss | .9906265 .0216857 -0.43 0.667 .9490223 1.034055

sp77\_503\_1\_ss | 1.892059 1.109046 1.09 0.277 .5997854 5.968614

sp77\_503\_ss | .7140796 .2139508 -1.12 0.261 .396928 1.28464

sp77\_504\_ss | .9297002 .0852906 -0.79 0.427 .776701 1.112838

sp77\_505\_ss | .9287515 .0926043 -0.74 0.459 .7638844 1.129201

sp77\_506\_1\_ss | 1.110953 .2930744 0.40 0.690 .6624379 1.863145

sp77\_506\_ss | .9671754 .1433013 -0.23 0.822 .7234144 1.293074

sp77\_507\_ss | .8616705 .1503109 -0.85 0.393 .6121481 1.212903

sp77\_508\_1\_ss | 2.875285 1.265046 2.40 0.016 1.213879 6.810611

sp77\_508\_ss | 1.488736 .618492 0.96 0.338 .6594589 3.360837

sp77\_509\_ss | .842733 .1092012 -1.32 0.187 .6537195 1.086397

sp77\_510\_ss | .4758374 .082345 -4.29 0.000 .3389658 .6679768

sp77\_511\_ss | 1.023209 .2510403 0.09 0.925 .6325944 1.65502

sp77\_512\_ss | .9853682 .0566931 -0.26 0.798 .8802878 1.102992

sp77\_513\_ss | 1.058557 .0967111 0.62 0.533 .8850081 1.266138

sp77\_514\_ss | 2.54e-08 2.61e-08 -17.07 0.000 3.42e-09 1.89e-07

sp77\_515\_ss | 2.71e-07 1.95e-07 -20.98 0.000 6.59e-08 1.11e-06

sp77\_516\_ss | .9638075 .1000923 -0.35 0.723 .7863072 1.181377

sp77\_600\_ss | 1.021988 .3927643 0.06 0.955 .4811907 2.170573

sp77\_601\_ss | .7164662 .1677745 -1.42 0.154 .4527623 1.13376

sp77\_602\_ss | .7851812 .1996624 -0.95 0.342 .4770011 1.29247

sp77\_603\_ss | .9612192 .526634 -0.07 0.942 .3284468 2.813065

sp77\_604\_ss | .7625211 .3014569 -0.69 0.493 .3513467 1.654885

sp77\_605\_ss | 1.53e-07 9.63e-08 -24.85 0.000 4.42e-08 5.26e-07

sp77\_606\_ss | 6.36e-07 6.37e-07 -14.23 0.000 8.91e-08 4.53e-06

sp77\_700\_1\_ss | 1.567187 .5197393 1.35 0.176 .8181444 3.002009

sp77\_700\_ss | .8787002 .3764961 -0.30 0.763 .3794259 2.034953

sp77\_701\_1\_ss | .5776734 .1948985 -1.63 0.104 .2981945 1.119091

sp77\_701\_2\_ss | .6028758 .2656012 -1.15 0.251 .2542289 1.429653

sp77\_701\_3\_ss | .4180361 .056897 -6.41 0.000 .3201553 .545842

sp77\_701\_4\_ss | .663567 .1726517 -1.58 0.115 .3984858 1.104986

sp77\_701\_ss | 1.02852 .0858958 0.34 0.736 .8732237 1.211435

sp77\_704\_1\_ss | 1.545309 .4685654 1.44 0.151 .8529347 2.799722

sp77\_704\_8\_ss | .6908718 .2014902 -1.27 0.205 .3900746 1.223622

sp77\_704\_9\_ss | 8.374341 2.448987 7.27 0.000 4.720911 14.8551

sp77\_704\_ss | .3487221 .1926119 -1.91 0.056 .1181218 1.029506

sp77\_705\_ss | .8134734 .271978 -0.62 0.537 .4224266 1.566518

sp77\_800\_1\_ss | .7630734 .4472012 -0.46 0.645 .2419454 2.406663

sp77\_800\_2\_ss | 1.042429 .7483257 0.06 0.954 .2552681 4.256928

sp77\_800\_ss | 1.846294 1.384454 0.82 0.414 .4246418 8.027475

sp77\_801\_1\_ss | 1.75e-06 1.76e-06 -13.15 0.000 2.42e-07 .0000126

sp77\_802\_ss | .5357785 .3824444 -0.87 0.382 .1322478 2.170611

sp77\_803\_ss | 2.67e-07 2.18e-07 -18.55 0.000 5.40e-08 1.32e-06

sp77\_804\_ss | 3.233471 2.142255 1.77 0.077 .8825242 11.84708

sp77\_805\_ss | .7073387 .3129931 -0.78 0.434 .2971501 1.683755

sp77\_807\_1\_ss | .5422703 .2161493 -1.54 0.125 .2482712 1.184419

sp77\_807\_2\_ss | .7931893 .3108526 -0.59 0.554 .3679502 1.709876

sp77\_807\_3\_ss | 1.337411 .1683952 2.31 0.021 1.044934 1.711751

sp77\_807\_ss | .9854595 .4361386 -0.03 0.974 .4139227 2.346164

sp77\_808\_ss | .8119734 .3598859 -0.47 0.638 .3406192 1.935595

sp77\_809\_ss | .7052999 .1207337 -2.04 0.041 .5042717 .986468

sp77\_810\_ss | 1.780405 .8689886 1.18 0.237 .6840067 4.634227

sp77\_900\_1\_ss | 2.1703 3.604254 0.47 0.641 .0837365 56.25029

sp77\_900\_2\_ss | 2.82e-07 2.94e-07 -14.47 0.000 3.66e-08 2.18e-06

sp77\_900\_ss | .5505696 .1333466 -2.46 0.014 .3424943 .8850568

sp77\_901\_1\_ss | 2.05e-07 2.23e-07 -14.15 0.000 2.43e-08 1.73e-06

sp77\_901\_ss | 1.207064 .2751138 0.83 0.409 .7721909 1.886844

sp77\_902\_3\_ss | 6.06e-07 3.44e-07 -25.24 0.000 1.99e-07 1.84e-06

sp77\_902\_ss | 1.685843 .3121348 2.82 0.005 1.17278 2.423358

sp77\_903\_ss | .3622836 .2091442 -1.76 0.079 .1168571 1.123162

sp77\_904\_ss | .9746947 .1091852 -0.23 0.819 .782559 1.214004

mine\_time | .9991685 .0016045 -0.52 0.604 .9960288 1.002318

onsite\_insp\_hours | .9997046 .0001305 -2.26 0.024 .9994489 .9999604

|

state |

AL | 1.18182 .1115065 1.77 0.077 .9822891 1.421882

AR | 1.992845 .1415393 9.71 0.000 1.733876 2.290494

CO | .7843404 .1335097 -1.43 0.154 .5618416 1.094953

IL | 1.232641 .0950971 2.71 0.007 1.059661 1.433857

IN | .9771798 .1538372 -0.15 0.883 .7177447 1.33039

MD | 1.084783 .1939975 0.46 0.649 .764043 1.540167

MT | 1.017629 .0515584 0.34 0.730 .9214319 1.123869

NM | .9056317 .0522682 -1.72 0.086 .8087696 1.014094

OH | 1.050269 .1376492 0.37 0.708 .8123468 1.357875

OK | .9017314 .2815665 -0.33 0.740 .4889774 1.662898

PA | 1.039547 .0877284 0.46 0.646 .8810701 1.226529

TN | 1.442183 .1943718 2.72 0.007 1.107385 1.878201

UT | .6635254 .0866278 -3.14 0.002 .5137209 .8570138

VA | .7507832 .0526072 -4.09 0.000 .6544419 .861307

WV | 1.130478 .0538323 2.58 0.010 1.029743 1.241068

WY | 1.201766 .0688616 3.21 0.001 1.074102 1.344603

|

time |

2000 | 1.061662 .1280849 0.50 0.620 .8380938 1.344869

2000.25 | 1.089515 .1272866 0.73 0.463 .8665394 1.369865

2000.5 | 1.389448 .1578723 2.89 0.004 1.112057 1.736032

2000.75 | .9987354 .1174482 -0.01 0.991 .7931435 1.257619

2001 | 1.002746 .1130609 0.02 0.981 .8039278 1.250734

2001.5 | 1.146654 .1315971 1.19 0.233 .9156787 1.435891

2001.75 | .9999682 .1109064 -0.00 1.000 .804599 1.242776

2002 | .9864546 .1197271 -0.11 0.911 .7776171 1.251378

2002.25 | .8991499 .1045711 -0.91 0.361 .7158754 1.129345

2002.5 | 1.140302 .1352405 1.11 0.268 .9037886 1.438709

2002.75 | 1.07765 .1313792 0.61 0.540 .8486047 1.368516

2003 | .8937259 .1123418 -0.89 0.371 .6985667 1.143407

2003.25 | .9548398 .1249853 -0.35 0.724 .7387731 1.234099

2003.5 | 1.063485 .1305353 0.50 0.616 .8360887 1.352728

2003.75 | .7284141 .0898686 -2.57 0.010 .5719536 .9276751

2004 | .9934666 .1253853 -0.05 0.959 .7757526 1.272282

2004.25 | .8852122 .1072861 -1.01 0.314 .6980449 1.122565

2004.5 | .9129521 .115473 -0.72 0.472 .7125009 1.169797

2004.75 | .8261654 .1007947 -1.57 0.118 .6504558 1.04934

2005 | .7115532 .0877895 -2.76 0.006 .5587126 .9062047

2005.25 | .933024 .1060212 -0.61 0.542 .7467397 1.165779

2005.5 | .7869037 .097283 -1.94 0.053 .6175749 1.00266

2005.75 | .7263773 .0938666 -2.47 0.013 .563852 .9357491

2006 | .7904167 .0945941 -1.97 0.049 .6251546 .9993664

2006.25 | .7873214 .1012947 -1.86 0.063 .6118412 1.013131

2006.5 | .8711138 .1047462 -1.15 0.251 .6882133 1.102622

2006.75 | .6889123 .0861522 -2.98 0.003 .5391587 .8802606

2007 | .7142416 .0884087 -2.72 0.007 .5603812 .9103465

2007.25 | .6681816 .089344 -3.02 0.003 .5141366 .8683815

2007.5 | .7630948 .094348 -2.19 0.029 .5988762 .9723439

2007.75 | .7226476 .0907706 -2.59 0.010 .564948 .9243674

2008 | .6211327 .0776268 -3.81 0.000 .4861882 .7935318

2008.25 | .6679788 .0850854 -3.17 0.002 .5204019 .8574061

2008.5 | .7282055 .0927439 -2.49 0.013 .5673425 .9346792

2008.75 | .5837817 .0766884 -4.10 0.000 .4512658 .7552113

2009 | .558548 .0721044 -4.51 0.000 .4336873 .7193568

2009.25 | .5487578 .0713311 -4.62 0.000 .4253397 .7079872

2009.5 | .6476556 .086431 -3.26 0.001 .4985968 .8412765

2009.75 | .498468 .065283 -5.32 0.000 .3856184 .6443425

2010 | .5282539 .0718241 -4.69 0.000 .4046775 .6895668

2010.25 | .5528473 .0698762 -4.69 0.000 .431538 .7082578

2010.5 | .6829793 .092932 -2.80 0.005 .5231012 .8917218

2010.75 | .5074192 .0688227 -5.00 0.000 .38897 .6619386

2011 | .6282015 .0821316 -3.56 0.000 .486197 .8116817

2011.25 | .5970847 .0763284 -4.03 0.000 .4647532 .7670955

2011.5 | .6676108 .086013 -3.14 0.002 .5186293 .8593888

2011.75 | .5311099 .0705453 -4.76 0.000 .4093762 .6890428

2012 | .6601821 .0817536 -3.35 0.001 .5179112 .841535

2012.25 | .5638445 .0732239 -4.41 0.000 .4371371 .7272789

2012.5 | .6797325 .0920202 -2.85 0.004 .5213206 .8862805

2012.75 | .5217289 .0721104 -4.71 0.000 .3979208 .6840584

2013 | .5301606 .0718455 -4.68 0.000 .4064953 .6914477

2013.25 | .4624162 .0653474 -5.46 0.000 .3505448 .6099898

2013.5 | .6052321 .0837751 -3.63 0.000 .461424 .7938597

2013.75 | .5219949 .0736213 -4.61 0.000 .3959261 .6882057

2014 | .4667884 .0702698 -5.06 0.000 .3475211 .6269876

2014.25 | .5302227 .0741546 -4.54 0.000 .4031002 .6974348

2014.5 | .5291451 .0733677 -4.59 0.000 .4032301 .6943791

2014.75 | .5473024 .0780505 -4.23 0.000 .4138453 .723797

2015 | .5204525 .0756935 -4.49 0.000 .3913669 .6921147

2015.25 | .5679846 .0873617 -3.68 0.000 .4201585 .7678208

2015.5 | .7058961 .0994593 -2.47 0.013 .5355601 .9304078

2015.75 | .4209531 .0678402 -5.37 0.000 .3069413 .5773141

2016 | .5933803 .0938176 -3.30 0.001 .4352634 .8089358

|

\_cons | .0000148 1.40e-06 -117.73 0.000 .0000123 .0000178

ln(hours) | 1 (exposure)

-----------------------------------------------------------------------------------

**. eststo: nbreg MR `subpart\_sig\_sub\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr**

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -110568.66

Iteration 1: log pseudolikelihood = -62915.526 (backed up)

Iteration 2: log pseudolikelihood = -57807.14

Iteration 3: log pseudolikelihood = -51283.619

Iteration 4: log pseudolikelihood = -21025.843

Iteration 5: log pseudolikelihood = -19570.176

Iteration 6: log pseudolikelihood = -19311.656

Iteration 7: log pseudolikelihood = -19288.51

Iteration 8: log pseudolikelihood = -19286.979

Iteration 9: log pseudolikelihood = -19286.951

Iteration 10: log pseudolikelihood = -19286.951

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -20107.698

Iteration 1: log pseudolikelihood = -19847.991

Iteration 2: log pseudolikelihood = -19841.286

Iteration 3: log pseudolikelihood = -19841.282

Iteration 4: log pseudolikelihood = -19841.282

Fitting full model:

Iteration 0: log pseudolikelihood = -19243.23

Iteration 1: log pseudolikelihood = -19192.188

Iteration 2: log pseudolikelihood = -19189.406

Iteration 3: log pseudolikelihood = -19189.385

Iteration 4: log pseudolikelihood = -19189.385

Negative binomial regression Number of obs = 28,337

Wald chi2(359) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -19189.385 Pseudo R2 = 0.0329

(Std. Err. adjusted for 1,544 clusters in mineid)

-----------------------------------------------------------------------------------

| Robust

MR | IRR Std. Err. z P>|z| [95% Conf. Interval]

------------------+----------------------------------------------------------------

sp47\_41\_ss | .7652339 .3964482 -0.52 0.606 .2772097 2.112419

sp47\_44\_ss | 8.45e-12 8.57e-12 -25.14 0.000 1.16e-12 6.17e-11

sp48\_11\_ss | 1.078911 .0782819 1.05 0.295 .9358918 1.243786

sp48\_25\_ss | .7625069 .1322269 -1.56 0.118 .5427956 1.071152

sp48\_26\_ss | 1.410473 .1202368 4.03 0.000 1.193448 1.666963

sp48\_27\_ss | 1.038967 .1324213 0.30 0.764 .8093044 1.333802

sp48\_28\_ss | 1.152771 .2251631 0.73 0.467 .7861104 1.690451

sp48\_4\_ss | 1.721455 1.257985 0.74 0.457 .4110214 7.209864

sp48\_5\_ss | 1.3263 .2493265 1.50 0.133 .9175449 1.91715

sp48\_6\_ss | .9858716 .1625673 -0.09 0.931 .7136081 1.362012

sp48\_7\_ss | 1.198903 .1084417 2.01 0.045 1.004135 1.431449

sp48\_8\_ss | 1.396853 .3418275 1.37 0.172 .8646712 2.256578

sp71\_701\_ss | 6.74e-11 7.64e-11 -20.65 0.000 7.30e-12 6.22e-10

sp72\_503\_ss | .8720414 .2437078 -0.49 0.624 .5042587 1.508067

sp72\_610\_ss | .9883129 .2416025 -0.05 0.962 .6120827 1.595801

sp72\_620\_ss | 1.783844 .4312378 2.39 0.017 1.110662 2.865047

sp72\_630\_ss | 1.030083 .0192261 1.59 0.112 .9930811 1.068463

sp75\_100\_ss | .8595664 .3633562 -0.36 0.720 .3753697 1.968338

sp75\_1001\_1\_ss | 1.079311 .7783686 0.11 0.916 .2625936 4.436179

sp75\_1001\_ss | 1.83304 .7448337 1.49 0.136 .8266018 4.064877

sp75\_1003\_1\_ss | .756651 .2486112 -0.85 0.396 .3973912 1.440698

sp75\_1100\_2\_ss | 1.0555 .0268859 2.12 0.034 1.004099 1.109533

sp75\_1101\_20\_ss | 3.22e-11 3.26e-11 -23.83 0.000 4.41e-12 2.35e-10

sp75\_1102\_ss | 1.02523 .1242168 0.21 0.837 .808518 1.300028

sp75\_1103\_4\_ss | 1.103019 .0663822 1.63 0.103 .9802924 1.24111

sp75\_1104\_ss | .7590029 .1565747 -1.34 0.181 .5065812 1.137203

sp75\_1106\_2\_ss | 1.12664 .0904379 1.49 0.137 .9626251 1.3186

sp75\_1106\_3\_ss | 1.074802 .0465466 1.67 0.096 .987337 1.170015

sp75\_1106\_4\_ss | 1.239201 .1887944 1.41 0.159 .9193055 1.670413

sp75\_1106\_5\_ss | .9594776 .1043317 -0.38 0.704 .7753126 1.187388

sp75\_1106\_6\_ss | .830595 .3683355 -0.42 0.676 .3482697 1.980902

sp75\_1106\_ss | .772734 .1018727 -1.96 0.051 .5967778 1.00057

sp75\_1107\_14\_ss | 3.082204 .5238775 6.62 0.000 2.208941 4.300697

sp75\_1400\_1\_ss | .8728323 .4185274 -0.28 0.777 .3410166 2.234015

sp75\_1400\_2\_ss | 1.214411 .3825986 0.62 0.537 .6549315 2.25183

sp75\_1400\_3\_ss | .8583786 .1302089 -1.01 0.314 .6376152 1.155578

sp75\_1400\_4\_ss | .4312047 .0913047 -3.97 0.000 .2847393 .6530097

sp75\_1400\_ss | .9143283 .1017609 -0.80 0.421 .7351349 1.137201

sp75\_1401\_ss | .7302272 .2288372 -1.00 0.316 .3951027 1.349603

sp75\_1403\_10\_ss | 1.023785 .0302854 0.79 0.427 .9661144 1.084897

sp75\_1403\_11\_ss | 1.875466 .3644962 3.24 0.001 1.281382 2.744985

sp75\_1403\_3\_ss | .356061 .1828167 -2.01 0.044 .1301612 .9740185

sp75\_1403\_4\_ss | 1.247701 .2341909 1.18 0.238 .863658 1.802517

sp75\_1403\_5\_ss | .9618803 .0201725 -1.85 0.064 .9231445 1.002241

sp75\_1403\_6\_ss | 1.013317 .0302147 0.44 0.657 .955794 1.074301

sp75\_1403\_7\_ss | 1.028669 .0856473 0.34 0.734 .8737842 1.211008

sp75\_1403\_8\_ss | .9721201 .0294845 -0.93 0.351 .9160155 1.031661

sp75\_1403\_9\_ss | .7074305 .1332927 -1.84 0.066 .4889924 1.023447

sp75\_1404\_1\_ss | .5509819 .3565917 -0.92 0.357 .1549692 1.958976

sp75\_1404\_ss | 2.24389 1.031872 1.76 0.079 .9111065 5.526293

sp75\_1405\_1\_ss | 1.082612 .8449362 0.10 0.919 .2345005 4.998068

sp75\_1405\_ss | .9439818 .0249304 -2.18 0.029 .8963623 .9941312

sp75\_1431\_ss | .3282231 .371294 -0.98 0.325 .0357494 3.013486

sp75\_1432\_ss | 6.09e-10 4.99e-10 -25.87 0.000 1.22e-10 3.04e-09

sp75\_1433\_ss | 1.044633 .3095778 0.15 0.883 .5843988 1.867317

sp75\_1434\_ss | 1.010958 .1792778 0.06 0.951 .7141437 1.431135

sp75\_1435\_ss | 1.121596 .5814604 0.22 0.825 .4060268 3.098263

sp75\_1437\_ss | 2.730516 1.393435 1.97 0.049 1.004293 7.42385

sp75\_150\_ss | .7548486 .3805583 -0.56 0.577 .2810121 2.027658

sp75\_151\_ss | 1.270249 .7204894 0.42 0.673 .4179119 3.860941

sp75\_153\_ss | .2047194 .1089541 -2.98 0.003 .0721339 .5810031

sp75\_155\_ss | .7418791 .1043598 -2.12 0.034 .5631123 .9773977

sp75\_156\_ss | 4.256296 1.438791 4.28 0.000 2.194285 8.256018

sp75\_1600\_2\_ss | .940834 .2066792 -0.28 0.781 .6116796 1.447112

sp75\_1712\_10\_ss | .5207373 .2162067 -1.57 0.116 .2307839 1.174984

sp75\_1712\_6\_ss | 1.174872 .2626394 0.72 0.471 .7580659 1.820851

sp75\_1720\_ss | .9965128 .0574171 -0.06 0.952 .890099 1.115649

sp75\_1721\_ss | 2.63e-09 1.85e-09 -28.09 0.000 6.63e-10 1.04e-08

sp75\_1725\_ss | .9981685 .0084751 -0.22 0.829 .981695 1.014918

sp75\_1726\_ss | 1.147285 .1723201 0.91 0.360 .8547167 1.539998

sp75\_1727\_ss | 2.23e-10 2.25e-10 -21.95 0.000 3.06e-11 1.62e-09

sp75\_1728\_ss | 2.1629 .6510374 2.56 0.010 1.19901 3.901664

sp75\_1729\_ss | .4977015 .1582146 -2.19 0.028 .2669193 .9280212

sp75\_1730\_ss | .6931404 .1885881 -1.35 0.178 .406657 1.181447

sp75\_1731\_ss | 1.005323 .0099804 0.53 0.593 .9859507 1.025076

sp75\_1903\_ss | .9666393 .2191587 -0.15 0.881 .6198378 1.507477

sp75\_1909\_ss | 1.067869 .0231697 3.03 0.002 1.023409 1.114261

sp75\_1910\_ss | .9980048 .0376521 -0.05 0.958 .9268704 1.074599

sp75\_1911\_ss | .8870254 .0502513 -2.12 0.034 .7938057 .9911924

sp75\_1912\_ss | .8111871 .261707 -0.65 0.517 .431027 1.526643

sp75\_1913\_ss | 1.616077 .2219484 3.50 0.000 1.234695 2.115262

sp75\_1914\_ss | 1.016436 .0174059 0.95 0.341 .9828872 1.05113

sp75\_1915\_ss | 1.039591 .4109274 0.10 0.922 .4790726 2.25592

sp75\_202\_ss | 1.005614 .0056216 1.00 0.317 .9946555 1.016692

sp75\_208\_ss | 1.025286 .0316184 0.81 0.418 .9651504 1.089168

sp75\_211\_ss | .9956121 .0319506 -0.14 0.891 .9349189 1.060245

sp75\_212\_ss | 1.004863 .0683199 0.07 0.943 .8794968 1.148099

sp75\_214\_ss | .9789014 .1959768 -0.11 0.915 .6611923 1.449273

sp75\_312\_ss | 1.007127 .3303961 0.02 0.983 .5294691 1.915701

sp75\_320\_ss | .9444855 .0909823 -0.59 0.553 .7819861 1.140753

sp75\_324\_ss | .971598 .0911068 -0.31 0.759 .8084803 1.167626

sp75\_337\_ss | 1.119721 .0608471 2.08 0.037 1.006595 1.245562

sp75\_340\_ss | 1.032433 .0270577 1.22 0.223 .98074 1.086851

sp75\_342\_ss | 1.022236 .0209918 1.07 0.284 .9819093 1.064218

sp75\_344\_ss | 1.090155 .1776351 0.53 0.596 .7921172 1.500331

sp75\_352\_ss | 1.049162 .0868349 0.58 0.562 .892056 1.233937

sp75\_382\_ss | .9177745 .1529444 -0.51 0.607 .6620424 1.27229

sp75\_503\_ss | .9939468 .008632 -0.70 0.484 .9771716 1.01101

sp75\_504\_ss | .4098417 .1885782 -1.94 0.053 .1663249 1.009892

sp75\_505\_ss | .4934911 .3226133 -1.08 0.280 .1370306 1.77722

sp75\_506\_1\_ss | 1.0539 .2931433 0.19 0.850 .6109935 1.817866

sp75\_506\_ss | .6623058 .168755 -1.62 0.106 .401951 1.0913

sp75\_507\_ss | .8738084 .1066964 -1.10 0.269 .6878286 1.110075

sp75\_511\_1\_ss | .4606888 .1041369 -3.43 0.001 .295799 .7174943

sp75\_511\_ss | 1.141793 .0970325 1.56 0.119 .966607 1.348729

sp75\_512\_1\_ss | 3.668048 1.080086 4.41 0.000 2.059643 6.53248

sp75\_512\_2\_ss | 1.016526 .075663 0.22 0.826 .8785391 1.176186

sp75\_512\_ss | .9951728 .0132712 -0.36 0.717 .9694987 1.021527

sp75\_513\_1\_ss | .2158319 .3065865 -1.08 0.280 .013335 3.493308

sp75\_513\_ss | .8726904 .1421984 -0.84 0.403 .634108 1.201039

sp75\_514\_ss | 1.092295 .055698 1.73 0.083 .988407 1.207103

sp75\_515\_ss | .9363327 .037869 -1.63 0.104 .8649764 1.013575

sp75\_516\_1\_ss | .8405384 .488908 -0.30 0.765 .2688111 2.628258

sp75\_516\_2\_ss | 1.014878 .65283 0.02 0.982 .2876539 3.580613

sp75\_516\_ss | 1.080104 .0751245 1.11 0.268 .9424581 1.237854

sp75\_517\_1\_ss | .9838165 .4099015 -0.04 0.969 .4347763 2.226191

sp75\_517\_ss | .9979427 .0094843 -0.22 0.828 .9795259 1.016706

sp75\_518\_1\_ss | .8512006 .1088677 -1.26 0.208 .6624668 1.093704

sp75\_518\_ss | 1.08689 .0398533 2.27 0.023 1.01152 1.167876

sp75\_519\_ss | .6401871 .259357 -1.10 0.271 .2893759 1.416288

sp75\_520\_ss | .996252 .0821315 -0.05 0.964 .8476094 1.170962

sp75\_523\_1\_ss | .9636402 .0543674 -0.66 0.512 .8627623 1.076313

sp75\_523\_2\_ss | .9626102 .0476929 -0.77 0.442 .873529 1.060776

sp75\_523\_ss | .9032051 .0553796 -1.66 0.097 .8009314 1.018538

sp75\_600\_1\_ss | .5829836 .2668426 -1.18 0.238 .2377089 1.429774

sp75\_600\_ss | 1.050518 .2401839 0.22 0.829 .6711048 1.644436

sp75\_601\_1\_ss | 1.032482 .0425624 0.78 0.438 .9523418 1.119365

sp75\_601\_2\_ss | .3333497 .0923551 -3.97 0.000 .1936749 .5737554

sp75\_601\_3\_ss | .8469244 .4348878 -0.32 0.746 .3095712 2.317014

sp75\_601\_ss | .9945326 .0418588 -0.13 0.896 .9157835 1.080053

sp75\_602\_ss | 1.083772 .0826507 1.05 0.291 .9333051 1.258497

sp75\_603\_ss | 1.081462 .0948789 0.89 0.372 .9106124 1.284366

sp75\_604\_ss | 1.030517 .0131011 2.36 0.018 1.005156 1.056517

sp75\_605\_ss | 1.020689 .052991 0.39 0.693 .9219378 1.130017

sp75\_606\_ss | 1.009942 .0300452 0.33 0.739 .9527386 1.07058

sp75\_607\_ss | .9535238 .1157658 -0.39 0.695 .751603 1.209691

sp75\_700\_1\_ss | .4596292 .2792483 -1.28 0.201 .1397201 1.512016

sp75\_700\_ss | .8802861 .1016688 -1.10 0.270 .701963 1.10391

sp75\_701\_1\_ss | .9595656 .1055649 -0.38 0.708 .7734482 1.190469

sp75\_701\_2\_ss | .9188957 .1672999 -0.46 0.642 .6431187 1.312929

sp75\_701\_3\_ss | 1.184157 .1587495 1.26 0.207 .9105338 1.540006

sp75\_701\_4\_ss | 1.127355 .5173546 0.26 0.794 .458602 2.771314

sp75\_701\_5\_ss | .8650616 .0922707 -1.36 0.174 .7018668 1.066202

sp75\_701\_ss | 1.004575 .0308984 0.15 0.882 .945804 1.066997

sp75\_703\_2\_ss | 1.111372 .5063918 0.23 0.817 .4550022 2.7146

sp75\_703\_3\_ss | 1.055714 .1926314 0.30 0.766 .7382973 1.509598

sp75\_703\_ss | 1.048479 .0627125 0.79 0.429 .9324958 1.178888

sp75\_704\_ss | 1.395109 .7201063 0.65 0.519 .50728 3.836794

sp75\_705\_1\_ss | 1.139635 .18951 0.79 0.432 .8226586 1.578746

sp75\_705\_8\_ss | 8.40e-10 6.35e-10 -27.61 0.000 1.90e-10 3.70e-09

sp75\_705\_ss | 1.260397 .3577518 0.82 0.415 .7226063 2.198431

sp75\_706\_ss | .9436338 .149524 -0.37 0.714 .691713 1.287304

sp75\_800\_2\_ss | 1.35e-09 1.36e-09 -20.36 0.000 1.89e-10 9.65e-09

sp75\_800\_3\_ss | .1533012 .1264447 -2.27 0.023 .0304414 .7720175

sp75\_800\_4\_ss | 10.89325 4.956217 5.25 0.000 4.465572 26.57282

sp75\_800\_ss | 1.05683 .122955 0.48 0.635 .8413435 1.327506

sp75\_801\_ss | 1.345462 .4107578 0.97 0.331 .739617 2.447574

sp75\_802\_ss | .3677045 .1744503 -2.11 0.035 .1450984 .9318266

sp75\_803\_2\_ss | 3.553532 .3197773 14.09 0.000 2.978941 4.238954

sp75\_803\_ss | 1.114016 .1387971 0.87 0.386 .872647 1.422145

sp75\_804\_ss | .9230509 .093203 -0.79 0.428 .7573166 1.125055

sp75\_805\_ss | .440829 .205351 -1.76 0.079 .1769113 1.098461

sp75\_806\_ss | 3.14e-11 1.98e-11 -38.29 0.000 9.11e-12 1.08e-10

sp75\_807\_ss | 1.013334 .0340996 0.39 0.694 .9486559 1.082421

sp75\_808\_ss | 1.511991 .2650472 2.36 0.018 1.072349 2.131877

sp75\_809\_ss | 1.024477 .1045183 0.24 0.813 .8388066 1.251246

sp75\_810\_ss | 1.27196 .227847 1.34 0.179 .8953586 1.806965

sp75\_811\_ss | .8410894 .2185742 -0.67 0.505 .5054057 1.39973

sp75\_812\_ss | 1.252689 .2712832 1.04 0.298 .8194201 1.91505

sp75\_814\_ss | .9685517 .1904351 -0.16 0.871 .6588111 1.423917

sp75\_815\_ss | 1.451053 .2788772 1.94 0.053 .995615 2.11483

sp75\_816\_ss | 1.108149 .1228667 0.93 0.354 .8917041 1.377132

sp75\_818\_ss | 1.445768 .4494717 1.19 0.236 .786087 2.659052

sp75\_819\_ss | .5700574 .2164301 -1.48 0.139 .2708622 1.199745

sp75\_820\_ss | 1.150249 .0691051 2.33 0.020 1.022476 1.293989

sp75\_821\_ss | 1.119354 .3825784 0.33 0.741 .572848 2.187234

sp75\_825\_ss | 1.28814 .1886049 1.73 0.084 .9667925 1.716299

sp75\_827\_ss | 1.173032 .4513255 0.41 0.678 .5518345 2.493508

sp75\_831\_ss | 1.408692 .1673734 2.88 0.004 1.116042 1.77808

sp75\_900\_2\_ss | 1.102933 .5194033 0.21 0.835 .4382211 2.775906

sp75\_900\_3\_ss | 1.161446 .2570213 0.68 0.499 .7527192 1.792111

sp75\_900\_4\_ss | 1.015785 .3885304 0.04 0.967 .4799801 2.149712

sp75\_900\_ss | 1.0014 .0519874 0.03 0.979 .9045188 1.108658

sp75\_901\_ss | 1.026414 .1937685 0.14 0.890 .7089754 1.485984

sp75\_902\_1\_ss | 1.945237 .4160509 3.11 0.002 1.279134 2.958211

sp75\_902\_2\_ss | 1.147191 .2504092 0.63 0.529 .7478853 1.75969

sp75\_902\_4\_ss | 1.03684 .0947915 0.40 0.692 .8667466 1.240314

sp75\_902\_ss | 1.05231 .0653834 0.82 0.412 .9316561 1.188588

sp75\_903\_ss | 1.209623 .0956553 2.41 0.016 1.035948 1.412413

sp75\_904\_ss | .9954901 .0216808 -0.21 0.836 .9538907 1.038904

sp75\_905\_ss | 1.260115 .2467664 1.18 0.238 .8584614 1.849693

sp75\_907\_ss | .6517341 .2152191 -1.30 0.195 .3411788 1.24497

sp77\_103\_ss | 7.60e-06 3.87e-06 -23.18 0.000 2.80e-06 .0000206

sp77\_1103\_ss | .9445572 .1004838 -0.54 0.592 .766789 1.163538

sp77\_1104\_ss | 1.043664 .023114 1.93 0.054 .9993307 1.089964

sp77\_1106\_ss | 8.23e-11 8.24e-11 -23.18 0.000 1.15e-11 5.86e-10

sp77\_1111\_ss | .888226 .2353275 -0.45 0.655 .5284517 1.492938

sp77\_1112\_ss | .8737482 .1128226 -1.05 0.296 .6783831 1.125376

sp77\_1403\_ss | .8522936 .2971033 -0.46 0.647 .4303944 1.687765

sp77\_1433\_ss | .5605278 .1769281 -1.83 0.067 .301939 1.040579

sp77\_1434\_ss | .8215471 .2580373 -0.63 0.531 .4438958 1.520491

sp77\_1437\_ss | .3213459 .0657678 -5.55 0.000 .2151606 .4799354

sp77\_1438\_ss | .7049625 .5618951 -0.44 0.661 .1478121 3.362188

sp77\_1605\_ss | 1.004988 .0279256 0.18 0.858 .9517188 1.061239

sp77\_1606\_ss | 1.029365 .0403254 0.74 0.460 .953287 1.111515

sp77\_1710\_ss | .9275572 .0330487 -2.11 0.035 .8649928 .9946468

sp77\_1802\_ss | .357684 .0786902 -4.67 0.000 .2323999 .5505073

sp77\_1906\_ss | 1.644828 .8135885 1.01 0.314 .6238595 4.336647

sp77\_1915\_ss | 5.83e-11 3.05e-11 -45.09 0.000 2.09e-11 1.62e-10

sp77\_1916\_ss | 1.505784 .2875172 2.14 0.032 1.035697 2.189237

sp77\_200\_ss | 1.013605 .0360101 0.38 0.704 .9454274 1.086699

sp77\_202\_ss | .9422296 .0403086 -1.39 0.164 .8664477 1.02464

sp77\_203\_ss | 1.120907 .2481962 0.52 0.606 .7262611 1.730001

sp77\_204\_ss | .9308184 .0394087 -1.69 0.090 .8566967 1.011353

sp77\_205\_ss | .9986248 .0174268 -0.08 0.937 .9650464 1.033372

sp77\_206\_ss | 1.029836 .0646522 0.47 0.640 .910606 1.164678

sp77\_207\_ss | 1.174339 .1034351 1.82 0.068 .9881443 1.395619

sp77\_208\_ss | 1.094736 .0554565 1.79 0.074 .991265 1.209008

sp77\_210\_ss | .9530287 .1222379 -0.38 0.708 .7411885 1.225415

sp77\_216\_ss | 1.350755 .4985479 0.81 0.415 .6552513 2.784486

sp77\_315\_ss | 1.436351 1.149202 0.45 0.651 .2993833 6.891181

sp77\_400\_ss | 1.019924 .0135256 1.49 0.137 .9937563 1.046782

sp77\_401\_ss | 1.068874 .1647782 0.43 0.666 .7901414 1.445933

sp77\_402\_ss | 1.00962 .0770666 0.13 0.900 .8693285 1.172552

sp77\_403\_1\_ss | .5379134 .1153441 -2.89 0.004 .3533379 .8189067

sp77\_403\_ss | 3.979596 1.476387 3.72 0.000 1.923324 8.234278

sp77\_404\_ss | .9624513 .0196804 -1.87 0.061 .9246412 1.001808

sp77\_405\_ss | 1.021355 .1456479 0.15 0.882 .7723124 1.350704

sp77\_408\_ss | .7941745 .1974563 -0.93 0.354 .4878439 1.292858

sp77\_409\_ss | 1.76e-10 1.81e-10 -21.77 0.000 2.32e-11 1.33e-09

sp77\_410\_ss | 1.003627 .0292008 0.12 0.901 .9479957 1.062523

sp77\_411\_ss | 2.252473 .2807872 6.51 0.000 1.764214 2.875863

sp77\_412\_ss | .9534785 .0794968 -0.57 0.568 .8097323 1.122743

sp77\_413\_ss | .3187919 .0461812 -7.89 0.000 .2399935 .4234627

sp77\_500\_ss | 1.098923 .1456527 0.71 0.477 .8475165 1.424908

sp77\_501\_ss | .8805639 .0984427 -1.14 0.255 .7072952 1.096279

sp77\_502\_1\_ss | 2.253323 .3858447 4.74 0.000 1.610902 3.151939

sp77\_502\_2\_ss | 1.022106 .1448179 0.15 0.877 .7742704 1.349271

sp77\_502\_ss | .9868843 .0204055 -0.64 0.523 .9476898 1.0277

sp77\_503\_1\_ss | 1.46983 .6512363 0.87 0.385 .6167735 3.502743

sp77\_503\_ss | .8666689 .2438057 -0.51 0.611 .4993427 1.504208

sp77\_504\_ss | .8813069 .0741215 -1.50 0.133 .7473733 1.039242

sp77\_505\_ss | .9440791 .0905923 -0.60 0.549 .7822193 1.139432

sp77\_506\_1\_ss | 1.190594 .3193517 0.65 0.515 .7037966 2.014098

sp77\_506\_ss | 1.002123 .1541847 0.01 0.989 .7412362 1.354831

sp77\_507\_ss | 1.001107 .159955 0.01 0.994 .7319431 1.369254

sp77\_508\_1\_ss | 2.563182 1.409808 1.71 0.087 .8721665 7.532854

sp77\_508\_ss | 1.294302 .519582 0.64 0.520 .5892925 2.84276

sp77\_509\_ss | .8300425 .0981708 -1.57 0.115 .6583047 1.046583

sp77\_510\_ss | .56203 .0847396 -3.82 0.000 .418235 .7552637

sp77\_511\_ss | 1.194275 .2715995 0.78 0.435 .764761 1.865017

sp77\_512\_ss | .988789 .0495947 -0.22 0.822 .8962102 1.090931

sp77\_513\_ss | 1.062152 .0847774 0.76 0.450 .9083366 1.242015

sp77\_514\_ss | 1.58e-11 1.61e-11 -24.30 0.000 2.12e-12 1.17e-10

sp77\_515\_ss | 8.51e-10 6.06e-10 -29.31 0.000 2.11e-10 3.44e-09

sp77\_516\_ss | .9339571 .0762226 -0.84 0.402 .7958995 1.095962

sp77\_600\_ss | 1.009252 .3332106 0.03 0.978 .5284089 1.927653

sp77\_601\_ss | .7783506 .1555352 -1.25 0.210 .5261173 1.151511

sp77\_602\_ss | .850341 .1814895 -0.76 0.448 .5596545 1.292011

sp77\_603\_ss | 1.190909 .6422561 0.32 0.746 .4138343 3.427131

sp77\_604\_ss | .7394607 .2576522 -0.87 0.386 .3735328 1.463867

sp77\_605\_ss | 2.23e-10 1.40e-10 -35.42 0.000 6.53e-11 7.64e-10

sp77\_606\_ss | 3.79e-10 3.79e-10 -21.67 0.000 5.33e-11 2.70e-09

sp77\_700\_1\_ss | 1.663977 .5136041 1.65 0.099 .9086881 3.047051

sp77\_700\_ss | .9856825 .3613697 -0.04 0.969 .4804747 2.022104

sp77\_701\_1\_ss | .7104975 .2147807 -1.13 0.258 .3928688 1.284924

sp77\_701\_2\_ss | .6057419 .2724031 -1.11 0.265 .2509002 1.462427

sp77\_701\_3\_ss | .4190117 .0546733 -6.67 0.000 .3244592 .5411182

sp77\_701\_4\_ss | .8488902 .2232096 -0.62 0.533 .5070305 1.421245

sp77\_701\_ss | 1.039747 .0750619 0.54 0.589 .9025628 1.197783

sp77\_704\_1\_ss | 1.500752 .4541428 1.34 0.180 .8293286 2.715759

sp77\_704\_8\_ss | .7459243 .1823384 -1.20 0.230 .4619785 1.204392

sp77\_704\_9\_ss | 9.154342 2.194141 9.24 0.000 5.722799 14.64353

sp77\_704\_ss | .4486922 .2401776 -1.50 0.134 .15715 1.281099

sp77\_705\_ss | .782857 .2604527 -0.74 0.462 .4078419 1.502703

sp77\_800\_1\_ss | .7530146 .3744081 -0.57 0.568 .2841683 1.995406

sp77\_800\_2\_ss | 1.13897 .7898416 0.19 0.851 .2925698 4.433994

sp77\_800\_ss | 1.517267 .5358179 1.18 0.238 .7593865 3.031524

sp77\_801\_1\_ss | 1.03e-09 1.04e-09 -20.54 0.000 1.43e-10 7.42e-09

sp77\_802\_ss | .5049835 .333135 -1.04 0.300 .1385938 1.839969

sp77\_803\_ss | 2.45e-09 2.09e-09 -23.27 0.000 4.62e-10 1.30e-08

sp77\_804\_ss | 2.851096 2.312992 1.29 0.197 .5813833 13.98174

sp77\_805\_ss | .8232525 .2846367 -0.56 0.574 .4180547 1.621187

sp77\_807\_1\_ss | .6431387 .2308404 -1.23 0.219 .3182619 1.299645

sp77\_807\_2\_ss | .8272682 .2673756 -0.59 0.557 .4390716 1.558681

sp77\_807\_3\_ss | 1.43894 .1136299 4.61 0.000 1.232608 1.67981

sp77\_807\_ss | .9541457 .4175374 -0.11 0.915 .4046933 2.24959

sp77\_808\_ss | .9190287 .371854 -0.21 0.835 .4158331 2.031136

sp77\_809\_ss | .7515846 .1223668 -1.75 0.079 .546251 1.034102

sp77\_810\_ss | 1.424404 .5186757 0.97 0.331 .6977192 2.907941

sp77\_900\_1\_ss | 1.375072 1.287908 0.34 0.734 .2193211 8.62125

sp77\_900\_2\_ss | 1.87e-10 1.94e-10 -21.63 0.000 2.45e-11 1.42e-09

sp77\_900\_ss | .6138934 .1298512 -2.31 0.021 .4055517 .9292654

sp77\_901\_1\_ss | 1.09e-10 1.18e-10 -21.10 0.000 1.29e-11 9.15e-10

sp77\_901\_ss | 1.168291 .2781126 0.65 0.513 .7326928 1.86286

sp77\_902\_3\_ss | 6.71e-10 3.96e-10 -35.79 0.000 2.11e-10 2.13e-09

sp77\_902\_ss | 1.610957 .3288662 2.34 0.020 1.079734 2.403538

sp77\_903\_ss | .3685196 .2066662 -1.78 0.075 .1227739 1.106153

sp77\_904\_ss | .9327819 .0925 -0.70 0.483 .7680157 1.132896

mine\_time | .9989351 .0017041 -0.62 0.532 .9956008 1.002281

onsite\_insp\_hours | .9997047 .0001258 -2.35 0.019 .9994581 .9999514

|

state |

AL | 1.139562 .1000632 1.49 0.137 .9593904 1.35357

AR | 2.034541 .1305655 11.07 0.000 1.794077 2.307235

CO | .7402191 .1258656 -1.77 0.077 .5304243 1.032992

IL | 1.184757 .0905902 2.22 0.027 1.019867 1.376305

IN | .9422691 .1470994 -0.38 0.703 .6938927 1.279551

MD | 1.048905 .1839661 0.27 0.785 .7437812 1.479202

MT | .921444 .0458939 -1.64 0.100 .8357446 1.015931

NM | .8589732 .045403 -2.88 0.004 .7744392 .9527344

OH | 1.123572 .1243456 1.05 0.292 .9044793 1.395736

OK | .868599 .2742751 -0.45 0.656 .4677759 1.612876

PA | .9667609 .0848672 -0.39 0.700 .8139473 1.148264

TN | 1.361013 .1806032 2.32 0.020 1.049325 1.765285

UT | .6323655 .0789094 -3.67 0.000 .4951667 .8075788

VA | .716401 .0559974 -4.27 0.000 .6146418 .8350073

WV | 1.064607 .0546866 1.22 0.223 .9626419 1.177372

WY | 1.140363 .0605197 2.47 0.013 1.027707 1.265368

|

time |

2000 | 1.087403 .1222976 0.75 0.456 .8722836 1.355573

2000.25 | 1.158947 .1289866 1.33 0.185 .9318108 1.441448

2000.5 | 1.399865 .1424917 3.30 0.001 1.146681 1.708951

2000.75 | 1.057391 .1155595 0.51 0.610 .8535128 1.30997

2001 | 1.057952 .1063289 0.56 0.575 .8687927 1.288295

2001.5 | 1.179281 .1249272 1.56 0.120 .9581756 1.451407

2001.75 | 1.00263 .1024344 0.03 0.979 .820686 1.22491

2002 | 1.037605 .115192 0.33 0.740 .8347065 1.289822

2002.25 | .9532283 .1055414 -0.43 0.665 .7672765 1.184246

2002.5 | 1.167116 .1247313 1.45 0.148 .9465531 1.439074

2002.75 | 1.092291 .1194061 0.81 0.419 .881632 1.353285

2003 | .9029268 .1038594 -0.89 0.375 .7206806 1.13126

2003.25 | .9624624 .1111142 -0.33 0.740 .7675637 1.20685

2003.5 | 1.082906 .1209091 0.71 0.476 .8700654 1.347812

2003.75 | .7964158 .0920256 -1.97 0.049 .6350147 .9988401

2004 | 1.01251 .114467 0.11 0.912 .811276 1.263659

2004.25 | .9611233 .1072224 -0.36 0.722 .7723595 1.196021

2004.5 | .9580514 .1088823 -0.38 0.706 .7667433 1.197092

2004.75 | .8768533 .0982758 -1.17 0.241 .7039245 1.092264

2005 | .7464484 .0815187 -2.68 0.007 .6026167 .9246096

2005.25 | .9561532 .0998261 -0.43 0.668 .7792176 1.173265

2005.5 | .8481375 .1004706 -1.39 0.164 .6724077 1.069793

2005.75 | .7684516 .0884555 -2.29 0.022 .6132475 .9629356

2006 | .8105052 .0885836 -1.92 0.055 .6542207 1.004124

2006.25 | .8058245 .0955149 -1.82 0.069 .6387737 1.016562

2006.5 | .9209798 .1013656 -0.75 0.455 .7422744 1.142709

2006.75 | .718112 .0827884 -2.87 0.004 .5728757 .9001688

2007 | .7620871 .086297 -2.40 0.016 .6104029 .9514647

2007.25 | .6941211 .0904734 -2.80 0.005 .5376351 .8961546

2007.5 | .7805696 .0883446 -2.19 0.029 .6252777 .9744294

2007.75 | .7702112 .0915162 -2.20 0.028 .6101974 .9721859

2008 | .6614992 .0784514 -3.48 0.000 .5243001 .8346008

2008.25 | .676965 .0797772 -3.31 0.001 .5373485 .8528575

2008.5 | .7741677 .0922002 -2.15 0.032 .6129999 .977709

2008.75 | .6276081 .0771714 -3.79 0.000 .493201 .798644

2009 | .6020873 .074501 -4.10 0.000 .4724258 .7673357

2009.25 | .5797947 .071292 -4.43 0.000 .4556274 .7378

2009.5 | .6977016 .0866038 -2.90 0.004 .5470316 .8898709

2009.75 | .5277477 .0637005 -5.30 0.000 .4165663 .6686035

2010 | .5619889 .0715285 -4.53 0.000 .4379141 .7212178

2010.25 | .5914376 .0719016 -4.32 0.000 .4660448 .7505684

2010.5 | .6865274 .0857455 -3.01 0.003 .5374586 .8769419

2010.75 | .5338554 .0680997 -4.92 0.000 .4157599 .6854956

2011 | .6322384 .0783117 -3.70 0.000 .4959609 .8059615

2011.25 | .6170873 .0746863 -3.99 0.000 .4867718 .7822902

2011.5 | .6923474 .0872362 -2.92 0.004 .5408442 .8862903

2011.75 | .5579545 .0687537 -4.74 0.000 .4382378 .710375

2012 | .7076617 .0839295 -2.92 0.004 .5608828 .8928515

2012.25 | .5942892 .0738711 -4.19 0.000 .465792 .7582346

2012.5 | .6914807 .0872088 -2.93 0.003 .5400419 .8853861

2012.75 | .5552146 .0731786 -4.46 0.000 .4288155 .7188715

2013 | .5807702 .0755683 -4.18 0.000 .4500369 .7494807

2013.25 | .5083936 .069517 -4.95 0.000 .3888731 .6646488

2013.5 | .67762 .0925296 -2.85 0.004 .5185061 .8855611

2013.75 | .5576359 .074266 -4.39 0.000 .4295242 .7239587

2014 | .5175684 .0764341 -4.46 0.000 .3874923 .6913094

2014.25 | .5755218 .0782103 -4.07 0.000 .4409486 .7511653

2014.5 | .5816198 .076235 -4.13 0.000 .4498515 .751985

2014.75 | .5996555 .0817 -3.75 0.000 .459124 .7832017

2015 | .5594222 .077225 -4.21 0.000 .4268116 .733235

2015.25 | .5926931 .086015 -3.60 0.000 .4459628 .7877003

2015.5 | .7431644 .1032654 -2.14 0.033 .5659881 .9758038

2015.75 | .4548749 .0720853 -4.97 0.000 .3334262 .6205607

2016 | .6332959 .097104 -2.98 0.003 .4689115 .8553078

|

\_cons | .0000147 1.32e-06 -124.35 0.000 .0000124 .0000176

ln(hours) | 1 (exposure)

------------------+----------------------------------------------------------------

/lnalpha | -1.660121 .1545817 -1.963095 -1.357146

------------------+----------------------------------------------------------------

alpha | .1901161 .0293885 .1404231 .2573943

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(est1 stored)

**. lrtest pois nbin, stats force**

Likelihood-ratio test LR chi2(1) = 195.13

(Assumption: pois nested in nbin) Prob > chi2 = 0.0000

Akaike's information criterion and Bayesian information criterion

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

pois | 28,337 -20154.17 -19286.95 360 39293.9 42264.59

nbin | 28,337 -19841.28 -19189.38 361 39100.77 42079.71

-----------------------------------------------------------------------------

Note: N=Obs used in calculating BIC; see [R] BIC note.

**. summ MR spcssv1\_yhat**

Variable | Obs Mean Std. Dev. Min Max

-------------+---------------------------------------------------------

MR | 30,289 .4096207 .9550592 0 14

spcssv1\_yhat | 28,337 .439193 .6984397 1.10e-12 23.37475