

## Appendix A

Specimen list: Categorically scored with locality and type of concretion. Sorted according to lithostratigraphic member. SDSM or field numbers followed by an asterisk (\*) indicate that the specimen contained at least one concretion and is included in the “concretions only” subset of data.

| SDSM/Field #           | Skull | Torso | Limbs | Tail | Member                | Type of Concretion |
|------------------------|-------|-------|-------|------|-----------------------|--------------------|
| JEM-89107-108,131-141* | 2     | 1     | 1     | 1    | DeGrey                | FeMg               |
| PC-DJC-91-01*          | 2     | 2     | 0     | 0    | DeGrey                | FeMg               |
| SDSM 074764*           | 1     | 2     | 1     | 1    | DeGrey                | FeMg               |
| JEM-LHA-95-210-1*      | 0     | 2     | 0     | 0    | DeGrey                | FeMg               |
| SDSM 103831            | 1     | 1     | 0     | 0    | DeGrey                | None               |
| SDSM 103832*           | 2     | 0     | 0     | 0    | DeGrey                | FeMg               |
| SDSM 103762            | 0     | 0     | 0     | 1    | DeGrey                | None               |
| SDSM 052142*           | 2     | 2     | 2     | 1    | DeGrey                | FeMg               |
| SDSM 101680            | 0     | 1     | 1     | 0    | DeGrey                | None               |
| JEM-89-153             | 0     | 0     | 0     | 1    | Gammon<br>Ferruginous | None               |
| SDSM 103832            | 1     | 0     | 0     | 0    | Gammon<br>Ferruginous | None               |
| SDSM 103826            | 1     | 0     | 0     | 0    | Gammon<br>Ferruginous | None               |
| JEM-89-115             | 1     | 1     | 1     | 0    | Gammon<br>Ferruginous | None               |
| SDSM 101638            | 1     | 1     | 1     | 1    | Gregory               | None               |
| SDSM 047155*           | 2     | 0     | 0     | 0    | Mitten                | CaCO <sub>3</sub>  |
| SDSM 103829*           | 2     | 0     | 0     | 0    | Mitten                | CaCO <sub>3</sub>  |
| KBRanch-1504*          | 2     | 2     | 0     | 1    | Mitten                | CaCO <sub>3</sub>  |
| SDSM 103760            | 0     | 1     | 1     | 0    | Mitten                | None               |
| SDSM 046710            | 0     | 1     | 0     | 1    | Mitten                | None               |
| DWV-93189              | 1     | 0     | 0     | 0    | Mitten                | None               |
| DWV-92-031*            | 2     | 0     | 0     | 0    | Sharon Springs        | CaCO <sub>3</sub>  |
| JEM-92-123             | 1     | 0     | 0     | 0    | Sharon Springs        | None               |
| GLB-940808             | 1     | 1     | 1     | 0    | Sharon Springs        | None               |
| DWV-92-030             | 1     | 0     | 0     | 0    | Sharon Springs        | None               |
| DWV-92006              | 0     | 0     | 0     | 1    | Sharon Springs        | None               |

| Field #           | Skull | Torso | Limbs | Tail | Member                       | Type of Concretion                      |
|-------------------|-------|-------|-------|------|------------------------------|---|
| SDSM 103828*      | 2     | 0     | 0     | 0    | Sharon Springs               | CaCO <sub>3</sub>                       |
| JEM-JAL-10-104-4* | 0     | 2     | 0     | 1    | Sharon Springs               | CaCO <sub>3</sub>                       |
| DWV-93-014        | 0     | 1     | 0     | 0    | Sharon Springs               | None                                    |
| SDSM 104270       | 1     | 0     | 0     | 0    | Sharon Springs               | None                                    |
| SDSM 045188       | 1     | 0     | 0     | 0    | Sharon Springs               | None                                    |
| SDSM 045191       | 0     | 0     | 1     | 0    | Sharon Springs               | None                                    |
| SDSM 052138       | 0     | 0     | 0     | 1    | Sharon Springs               | None                                    |
| GLB990728-1-5     | 1     | 0     | 0     | 0    | Sharon Springs               | None                                    |
| USACE-1422        | 0     | 0     | 1     | 0    | Sharon Springs               | None                                    |
| SDSM 110158       | 1     | 1     | 0     | 0    | Sharon Springs               | None                                    |
| SDSM 110086       | 0     | 1     | 1     | 0    | Sharon Springs               | None                                    |
| DC '95*           | 2     | 2     | 1     | 2    | Sharon Springs               | CaCO <sub>3</sub>                       |
| KBRanch-1501*     | 0     | 2     | 0     | 0    | Sharon Springs               | CaCO <sub>3</sub>                       |
| KBRanch-1502*     | 0     | 2     | 0     | 0    | Sharon Springs               | CaCO <sub>3</sub>                       |
| SDSM 110524*      | 2     | 2     | 2     | 2    | Sharon Springs               | CaCO <sub>3</sub>                       |
| KBRanch-1503*     | 0     | 2     | 0     | 0    | Sharon Springs               | CaCO <sub>3</sub>                       |
| SDSM 110155*      | 2     | 2     | 0     | 1    | Sharon Springs               | CaCO <sub>3</sub> / Gypsum<br>Phosphate |
| SDSM 103835       | 0     | 0     | 1     | 1    | Sharon Springs               | None                                    |
| SDSM 072344       | 1     | 1     | 1     | 1    | Sharon Springs               | None                                    |
| SDSM 101762       | 0     | 1     | 1     | 0    | Verendrye                    | None                                    |
| SDSM 103834*      | 2     | 2     | 2     | 0    | Verendrye                    | FeMg                                    |
| SDSM 110221*      | 1     | 2     | 0     | 0    | Verendrye                    | CaCO <sub>3</sub>                       |
| PC-WRS-95-01*     | 2     | 2     | 0     | 0    | Verendrye/<br>DeGrey contact | CaCO <sub>3</sub>                       |

## Appendix B

Historical Collections Dataset: Scored for presence and absence of anatomical region and includes taxon, stratigraphic unit of provenance. SDSM number is used in place of Field number where applicable.

| Field Number  | Taxon                     | Skull | Torso | Limbs | Tail | Member |
|---------------|---------------------------|-------|-------|-------|------|--------|
| PC-DCP-91-001 | <i>Mosasaurus conodon</i> | 0     | 0     | 1     | 0    | DeGrey |
| PC-DJC-91-04  | <i>Mosasaurus</i>         | 0     | 0     | 1     | 0    | DeGrey |
| PC-TMA-91-04  | <i>Plioplatecarpus</i>    | 0     | 1     | 0     | 1    | DeGrey |

| Field Number       | Taxon                                | Skull | Torso | Limbs | Tail | Member |
|--------------------|--------------------------------------|-------|-------|-------|------|--------|
| PAH-92-03          | <i>Plioplatecarpinae</i>             | 1     | 1     | 1     | 0    | DeGrey |
| LGC-92-09          | <i>Plioplatecarpus</i><br><i>sp.</i> | 0     | 1     | 0     | 0    | DeGrey |
| DJC-93-03          | Mososauridae                         | 0     | 1     | 1     | 0    | DeGrey |
| PAH-93-03          | <i>Plioplatecarpus</i>               | 1     | 1     | 1     | 0    | DeGrey |
| JEM-LHA-931        | Mososauridae                         | 1     | 1     | 0     | 1    | DeGrey |
| CKZ-94-01          | Mososaurinae                         | 0     | 1     | 0     | 1    | DeGrey |
| JEC-94-03          | Mososaurinae                         | 0     | 0     | 0     | 1    | DeGrey |
| JEC-94-04          | Mososaurinae                         | 0     | 1     | 0     | 1    | DeGrey |
| CAM(LHA)-<br>94-03 | <i>Plioplatecarpus</i>               | 0     | 1     | 1     | 1    | DeGrey |
| LGC-95-01          | <i>Mosasaurus</i>                    | 0     | 0     | 1     | 0    | DeGrey |
| JAJ-95-05          | <i>Plioplatecarpus</i>               | 0     | 1     | 0     | 1    | DeGrey |
| JEM-LHA-<br>95217  | Mososauridae                         | 0     | 0     | 0     | 1    | DeGrey |
| KL-95-06           | Mososauridae                         | 0     | 1     | 1     | 0    | DeGrey |
| JEM-LHA-<br>95232  | <i>Plioplatecarpinae</i>             | 1     | 0     | 0     | 0    | DeGrey |
| RWC-975            | <i>Mosasaurus</i>                    | 0     | 0     | 0     | 1    | DeGrey |
| DAS-974            | Mososauridae                         | 0     | 0     | 0     | 1    | DeGrey |
| VRP-0101           | Mososauridae                         | 0     | 0     | 0     | 1    | DeGrey |
| GEM-0104           | Mososauridae                         | 0     | 0     | 1     | 0    | DeGrey |
| LGC-909            | Mososauridae                         | 0     | 1     | 0     | 0    | DeGrey |
| JEM-90224          | Mososauridae                         | 1     | 0     | 1     | 0    | DeGrey |
| JAB-9024           | Mososauridae                         | 0     | 0     | 0     | 1    | DeGrey |
| DJC-91-01          | <i>Prognathodon</i>                  | 1     | 1     | 0     | 0    | DeGrey |
| SDSM 101909        | <i>Globidens</i>                     | 1     | 1     | 1     | 1    | DeGrey |
| ALMD-92-12         | <i>Plioplatecarpus</i>               | 1     | 1     | 0     | 1    | DeGrey |
| KL-93-08           | <i>Plioplatecarpus</i>               | 0     | 1     | 0     | 0    | DeGrey |
| PAH-93-06          | Mososaurinae                         | 1     | 0     | 0     | 1    | DeGrey |
| SJR-93-01          | <i>Plioplatecarpus</i>               | 0     | 1     | 1     | 1    | DeGrey |
| JEM-LHA-94-<br>155 | <i>Plioplatecarpus</i>               | 1     | 0     | 0     | 0    | DeGrey |
| JEM-LHA-<br>95236  | Mososauridae                         | 0     | 0     | 1     | 1    | DeGrey |
| JKZ-96-04          | <i>Mososaurinae</i>                  | 0     | 1     | 1     | 0    | DeGrey |
| WRS-98-06          | <i>cf.</i><br><i>Plioplatecarpus</i> | 0     | 0     | 0     | 1    | DeGrey |
| SDSM 044640        | <i>Plioplatecarpus</i>               | 1     | 0     | 0     | 0    | DeGrey |
| SDSM 044641        | <i>Plioplatecarpus</i>               | 0     | 0     | 0     | 1    | DeGrey |
| SDSM 052142        | Mososaurinae                         | 1     | 1     | 0     | 0    | DeGrey |

| Field Number           | Taxon                               | Skull | Torso | Limbs | Tail | Member                |
|------------------------|-------------------------------------|-------|-------|-------|------|-----------------------|
| PN-073                 | <i>Tylosaurinae</i>                 | 0     | 0     | 0     | 1    | DeGrey                |
| JEM-0959               | Mososauridae                        | 0     | 0     | 1     | 0    | DeGrey                |
| JEM-0961               | <i>Plioplatecarpus</i>              | 1     | 0     | 0     | 0    | DeGrey                |
| JEM-11116              | Mososaurinae                        | 0     | 0     | 0     | 1    | DeGrey                |
| LA-93-01               | <i>Mosasaurus</i>                   | 1     | 0     | 0     | 0    | DeGrey                |
| SDSM 044633            | Mososaurinae                        | 0     | 0     | 1     | 0    | DeGrey                |
| PC-LGC-04-02           | <i>Plioplatecarpus</i>              | 0     | 0     | 0     | 1    | DeGrey                |
| JEM-89-107-108,131-141 | <i>Prognathodon</i>                 | 1     | 1     | 1     | 1    | DeGrey                |
| GLB-940808             | <i>Mosasaurus</i> cf. <i>dekayi</i> | 1     | 1     | 1     | 0    | DeGrey                |
| SDSM 074764            | Mososauridae                        | 1     | 1     | 1     | 1    | DeGrey                |
| JEM-LHA-95-210-1       | <i>Mosasaurus</i>                   | 0     | 1     | 0     | 0    | DeGrey                |
| SDSM 103831            | <i>Mosasaurus</i>                   | 1     | 1     | 0     | 0    | DeGrey                |
| SDSM 103833            | Mososauridae                        | 1     | 0     | 0     | 0    | DeGrey                |
| SDSM 103762            | Mososauridae                        | 0     | 0     | 0     | 1    | DeGrey                |
| SDSM 052142            | Mososaurinae                        | 0     | 1     | 1     | 1    | DeGrey                |
| PC-MB-92-03            | <i>Plioplatecarpus</i>              | 1     | 0     | 0     | 0    | DeGrey                |
| SDSM 026172            | <i>Mosasaurus conodon</i>           | 1     | 1     | 1     | 1    | DeGrey                |
| JEM-92-121-123         | Mososauridae                        | 1     | 0     | 0     | 0    | DeGrey                |
| KLM-93-005             | <i>Plioplatecarpus</i>              | 1     | 0     | 1     | 0    | DeGrey                |
| KL-93-05               | <i>Plioplatecarpus primaevus</i>    | 1     | 1     | 1     | 1    | DeGrey                |
| LGC-94-06              | <i>Plioplatecarpus</i>              | 1     | 1     | 0     | 0    | DeGrey                |
| SDSM 101680            | Mososauridae                        | 0     | 1     | 1     | 0    | DeGrey                |
| JEM-89-153             | Mososauridae                        | 0     | 0     | 0     | 1    | Gammon<br>Ferruginous |
| SDSM 103826            | Mososauridae                        | 1     | 0     | 0     | 0    | Gammon<br>Ferruginous |
| SDSM 103832            | Mososauridae                        | 1     | 0     | 0     | 0    | Gammon<br>Ferruginous |
| SDSM 103826            | Mososauridae                        | 1     | 0     | 0     | 0    | Gammon<br>Ferruginous |
| JEM-89-155             | Mososauridae                        | 1     | 1     | 1     | 0    | Gammon<br>Ferruginous |
| CKZ-94-03              | <i>Plioplatecarpus</i>              | 1     | 1     | 0     | 0    | Gregory               |
| PAH-95-06              | Mososaurinae                        | 1     | 0     | 0     | 0    | Gregory               |
| WRS-96-03              | <i>Mosasaurus</i>                   | 1     | 0     | 0     | 0    | Gregory               |
| RMS-98-002             | Mososaurinae                        | 0     | 1     | 0     | 0    | Gregory               |

| <b>Field Number</b> | <b>Taxon</b>                              | <b>Skull</b> | <b>Torso</b> | <b>Limbs</b> | <b>Tail</b> | <b>Member</b>  |
|---------------------|---|--------------|--------------|--------------|-------------|----------------|
| SDSM 040010         | Mososaurinae                              | 1            | 1            | 0            | 0           | Gregory        |
| SDSM 110668         | Tylosaurinae                              | 0            | 0            | 0            | 1           | Gregory        |
| JEM-JAL-0995        | <i>Russelosaurinae</i>                    | 0            | 0            | 0            | 1           | Gregory        |
| SDSM 101638         | Tylosaurinae                              | 1            | 1            | 1            | 1           | Gregory        |
| JEM-00-94           | <i>Plioplatecarpus</i><br><i>sp.?</i>     | 0            | 1            | 1            | 0           | Gregory        |
| SDSM 047155         | <i>Tylosaurus</i>                         | 1            | 0            | 0            | 0           | Mitten         |
| SDSM 103829         | <i>Globidens</i>                          | 1            | 0            | 0            | 0           | Mitten         |
| KBRanch-1504        | Mososauridae                              | 1            | 1            | 0            | 1           | Mitten         |
| SDSM 103760         | <i>Platecarpus</i>                        | 0            | 1            | 1            | 0           | Mitten         |
| SDSM 046710         | <i>Tylosaur</i><br>( <i>Platecarpus</i> ) | 0            | 1            | 0            | 0           | Mitten         |
| DWV-93189           | <i>Clidastes</i>                          | 1            | 0            | 0            | 0           | Mitten         |
| SDSM 110156         | <i>Plioplatecarpus</i>                    | 0            | 0            | 1            | 0           | Mitten         |
| DWV-91-112          | <i>Platecarpus</i>                        | 1            | 0            | 0            | 0           | Mitten         |
| SDSM 045220         | <i>Plioplatecarpus</i>                    | 0            | 1            | 1            | 1           | Mitten         |
| PC-SB-92-05         | <i>Platecarpus</i>                        | 1            | 0            | 0            | 0           | Sharon Springs |
| BSG-93-04           | Mososauridae                              | 1            | 0            | 0            | 0           | Sharon Springs |
| JEC-94-01           | Mososauridae                              | 0            | 1            | 0            | 0           | Sharon Springs |
| JEC-94-02           | Plioplatecarpinae                         | 0            | 0            | 0            | 1           | Sharon Springs |
| SDSM 039968         | <i>Platecarpus</i>                        | 1            | 1            | 1            | 0           | Sharon Springs |
| BOG-0108            | Tylosaurinae                              | 1            | 0            | 0            | 0           | Sharon Springs |
| JEM-0177            | Tylosaurinae                              | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 023016         | <i>Tylosaurus</i>                         | 0            | 1            | 0            | 0           | Sharon Springs |
| JEM-94-157          | <i>Tylosaurus</i>                         | 0            | 0            | 0            | 1           | Sharon Springs |
| JEM-95229           | <i>Tylosaurus</i>                         | 1            | 0            | 1            | 0           | Sharon Springs |
| JEM-95230           | <i>Tylosaurus</i>                         | 0            | 1            | 1            | 1           | Sharon Springs |
| SDSM 045331         | Mososauridae                              | 1            | 0            | 1            | 0           | Sharon Springs |
| SRA-0702            | Mososauridae                              | 0            | 0            | 1            | 0           | Sharon Springs |
| JEM-0972            | Tylosaurinae                              | 0            | 0            | 0            | 1           | Sharon Springs |
| SDSM 104270         | Mososauridae                              | 1            | 0            | 0            | 0           | Sharon Springs |
| JEM-10-109          | Tylosaurinae                              | 0            | 0            | 0            | 1           | Sharon Springs |
| SDSM 110486         | Tylosaurinae                              | 0            | 0            | 0            | 1           | Sharon Springs |
| JEM-10-128          | Tylosaurinae                              | 0            | 0            | 0            | 1           | Sharon Springs |
| JEM-ARW-10-129      | Tylosaurinae                              | 0            | 0            | 1            | 1           | Sharon Springs |
| JEM-10-131          | Plioplatecarpinae                         | 1            | 1            | 0            | 0           | Sharon Springs |
| JEM-10131           | Plioplatecarpinae                         | 1            | 1            | 1            | 1           | Sharon Springs |
| JEM-11108           | Plioplatecarpinae                         | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 110024         | Plioplatecarpinae                         | 1            | 1            | 1            | 0           | Sharon Springs |

| <b>Field Number</b> | <b>Taxon</b>           | <b>Skull</b> | <b>Torso</b> | <b>Limbs</b> | <b>Tail</b> | <b>Member</b>  |
|---------------------|------------------------|--------------|--------------|--------------|-------------|----------------|
| JEM-11112           | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| JEM-1195            | Tylosaurinae           | 0            | 1            | 1            | 1           | Sharon Springs |
| JEM-11123           | Mosasauridae           | 0            | 1            | 1            | 0           | Sharon Springs |
| JEM-JAL-11124       | Tylosaurinae           | 0            | 1            | 0            | 0           | Sharon Springs |
| USACE-1229          | <i>Tylosaurus</i>      | 1            | 0            | 0            | 0           | Sharon Springs |
| USACE-1331          | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| USAC-1411           | <i>Plioplatecarpus</i> | 1            | 0            | 0            | 0           | Sharon Springs |
| USAC-1416           | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| USAC-1419           | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| USAC-1421           | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| USAC-1422           | Mosasauridae           | 0            | 0            | 0            | 1           | Sharon Springs |
| USAC-1424           | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| USAC-1425           | Mosasauridae           | 0            | 0            | 0            | 1           | Sharon Springs |
| DWV-92-031          | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 110155         | <i>Clidastes</i>       | 1            | 1            | 0            | 1           | Sharon Springs |
| JEM-92-123          | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| DWV-92-030          | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| DWV-92006           | Mosasauridae           | 0            | 0            | 0            | 1           | Sharon Springs |
| SDSM 103828         | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| JEM-JAL-10-104-4    | Mosasauridae           | 1            | 1            | 0            | 1           | Sharon Springs |
| SDSM 103835         | <i>Tylosaurus</i>      | 0            | 1            | 1            | 1           | Sharon Springs |
| SDSM 104127         | <i>Plioplatecarpus</i> | 0            | 1            | 0            | 0           | Sharon Springs |
| SDSM 104270         | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 045188         | <i>Platecarpus</i>     | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 045191         | <i>Plioplatecarpus</i> | 0            | 0            | 1            | 0           | Sharon Springs |
| SDSM 52138          | Mosasaurinae           | 1            | 0            | 0            | 0           | Sharon Springs |
| SDSM 45225          | Mosasauridae           | 0            | 0            | 1            | 0           | Sharon Springs |
| SDSM 110158         | Mosasauridae           | 1            | 1            | 0            | 0           | Sharon Springs |
| SDSM 110086         | Mosasauridae           | 0            | 1            | 1            | 0           | Sharon Springs |
| SDSM 110524         | Mosasauridae           | 1            | 1            | 1            | 1           | Sharon Springs |
| DC-95               | Mosasauridae           | 1            | 1            | 1            | 1           | Sharon Springs |
| KBRanch-1501        | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| KBRanch-1502        | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| TCW-90-05           | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |
| DLA-90-01           | Mosasauridae           | 0            | 1            | 0            | 0           | Sharon Springs |
| DWV-91-28           | <i>Platecarpus</i>     | 0            | 0            | 1            | 0           | Sharon Springs |
| DWV-91-38           | Mosasauridae           | 1            | 0            | 0            | 0           | Sharon Springs |

| Field Number   | Taxon                  | Skull | Torso | Limbs | Tail | Member         |
|----------------|------------------------|-------|-------|-------|------|----------------|
| SDSM 110485    | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-91-74      | <i>Tylosaurus</i>      | 1     | 0     | 0     | 0    | Sharon Springs |
| DWV-91-97      | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-91-99      | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-91-100     | Mosasauroidea          | 1     | 0     | 0     | 0    | Sharon Springs |
| DWV-91-101     | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-91-115     | Mosasauroidea          | 1     | 0     | 0     | 0    | Sharon Springs |
| DWV-92-06      | Mosasauroidea          | 0     | 0     | 0     | 1    | Sharon Springs |
| SDSM 103830    | Mosasauroidea          | 1     | 0     | 0     | 0    | Sharon Springs |
| SDSM 103830    | Mosasauroidea          | 0     | 0     | 0     | 1    | Sharon Springs |
| DWV-93-181     | <i>Plioplatecarpus</i> | 1     | 1     | 0     | 1    | Sharon Springs |
| RJM-10-01      | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWB-94-001     | Mosasauroidea          | 0     | 0     | 0     | 1    | Sharon Springs |
| GB-94-0604-3   | <i>Mosasauroidea</i>   | 0     | 0     | 0     | 1    | Sharon Springs |
| SDSM 039968    | <i>Tylosaurinae</i>    | 1     | 1     | 0     | 0    | Sharon Springs |
| SDSM 045187    | Mosasauroidea          | 0     | 0     | 0     | 1    | Sharon Springs |
| GLB-990728-1-7 | <i>Clidastes</i>       | 0     | 0     | 1     | 0    | Sharon Springs |
| JJP-99-6       | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| JJP-99-4       | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-93021      | <i>Clidastes</i>       | 1     | 0     | 0     | 0    | Sharon Springs |
| DWV-93-047     | <i>Mosasauroidea</i>   | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-93-052     | <i>Plioplatecarpus</i> | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-93-056     | <i>Plioplatecarpus</i> | 1     | 0     | 0     | 0    | Sharon Springs |
| DWV-93-128     | <i>Mosasauroidea</i>   | 0     | 0     | 1     | 0    | Sharon Springs |
| DWV-93-174     | <i>Plioplatecarpus</i> | 0     | 0     | 0     | 1    | Sharon Springs |
| SDSM11090      | <i>Plioplatecarpus</i> | 0     | 1     | 1     | 0    | Sharon Springs |
| BOG-03-009     | Mosasauroidea          | 0     | 0     | 0     | 1    | Sharon Springs |
| WAT-04-01      | <i>Plioplatecarpus</i> | 0     | 0     | 1     | 0    | Sharon Springs |
| JMB-04-01      | Mosasauroidea          | 0     | 1     | 1     | 0    | Sharon Springs |
| BJM-07-03      | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| BOR-07-03      | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| PC-AMT-08-04   | Mosasauroidea          | 0     | 0     | 1     | 0    | Sharon Springs |
| JEM-89173      | Mosasauroidea          | 1     | 1     | 1     | 0    | Sharon Springs |
| DJC-WR-98-8    | <i>Tylosaurus</i>      | 0     | 0     | 1     | 0    | Sharon Springs |
| SDSM 072344    | Mosasauroidea          | 1     | 1     | 1     | 1    | Sharon Springs |
| PC-JEG-91-01   | <i>Plioplatecarpus</i> | 1     | 1     | 0     | 0    | Verendrye      |
| PC-RJM-91-03   | <i>Mosasauroidea</i>   | 0     | 1     | 0     | 0    | Verendrye      |
| PC-CAD-91-01   | <i>Mosasauroidea</i>   | 0     | 0     | 1     | 0    | Verendrye      |

| Field Number  | Taxon                                | Skull | Torso | Limbs | Tail | Member                   |
|---------------|--------------------------------------|-------|-------|-------|------|--------------------------|
| WRS-92-01     | <i>Mosasaurus</i> cf. <i>conodon</i> | 1     | 0     | 0     | 0    | Verendrye                |
| DCP-93-04     | Mososauridae                         | 0     | 0     | 0     | 1    | Verendrye                |
| DCP-93-05     | <i>Plioplatecarpus</i>               | 1     | 1     | 1     | 1    | Verendrye                |
| WEB-98-002    | Mososaurinae                         | 0     | 0     | 0     | 1    | Verendrye                |
| JEM-90217     | Mososauridae                         | 0     | 0     | 1     | 0    | Verendrye                |
| JEM-95233     | Mososauridae                         | 0     | 0     | 1     | 0    | Verendrye                |
| JEM-90283     | <i>Plioplatecarpus</i>               | 0     | 0     | 1     | 0    | Verendrye                |
| EJN-93-02     | <i>Mosasaurus</i> <i>conodon</i>     | 1     | 1     | 0     | 0    | Verendrye                |
| JEM-LHA-96195 | ? <i>Hainosaurus</i>                 | 0     | 0     | 0     | 1    | Verendrye                |
| DDH-96-01     | ? <i>Prognathodon</i>                | 0     | 1     | 0     | 1    | Verendrye                |
| SDSM 044616   | <i>Plioplatecarpus</i>               | 0     | 1     | 0     | 0    | Verendrye                |
| SDSM 051410   | Mososaurinae                         | 1     | 0     | 0     | 0    | Verendrye                |
| SDSM 051412   | <i>Plioplatecarpus</i>               | 0     | 0     | 1     | 0    | Verendrye                |
| SDSM 103834   | <i>Plioplatecarpus</i>               | 1     | 1     | 1     | 0    | Verendrye                |
| SDSM 101762   | <i>Mosasaurus</i>                    | 0     | 1     | 1     | 0    | Verendrye                |
| DCP-91-002    | Mososauridae                         | 1     | 0     | 0     | 1    | Verendrye                |
| SDSM 051411   | Mososaurinae                         | 0     | 0     | 0     | 1    | Verendrye                |
| SDSM 110221   | Mososauridae                         | 1     | 1     | 0     | 0    | Verendrye                |
| JGB-92-01     | <i>Mosasaurus</i>                    | 1     | 1     | 0     | 1    | Verendrye or DeGrey      |
| JVB-92-03     | <i>Mosasaurus</i>                    | 0     | 0     | 0     | 1    | Verendrye or DeGrey      |
| JJS-92-04     | Mososauridae                         | 1     | 0     | 0     | 0    | Verendrye or DeGrey      |
| WBG-92-01A    | Mososauridae                         | 0     | 1     | 0     | 1    | Verendrye or DeGrey      |
| HJC-93-01     | Mososauridae                         | 0     | 1     | 0     | 0    | Verendrye/DeGrey contact |
| HJC-93-02     | Mososauridae                         | 1     | 1     | 0     | 0    | Verendrye/DeGrey contact |
| KL-93-01      | Mososauridae                         | 0     | 1     | 0     | 1    | Verendrye/DeGrey contact |
| JCL-0103      | Mososauridae                         | 1     | 0     | 0     | 0    | Verendrye/DeGrey contact |
| LGC-907       | <i>Globidens</i>                     | 0     | 0     | 1     | 0    | Verendrye/DeGrey contact |
| WRS-95-01     | Mososauridae                         | 1     | 1     | 0     | 0    | Verendrye/DeGrey contact |



## Appendix C

Compilation of the contingency tables used in the chi-square analyses, grouped by the question they are answering.

Is the occurrence of anatomical regions equal across all four anatomical regions in the “historical collections,” “no concretions,” and the “concretions only” datasets?

| <b>Historical Collections</b> | Present | Absent |
|-------------------------------|---------|--------|
| Skull                         | 92      | 118    |
| Torso                         | 86      | 124    |
| Limbs                         | 76      | 134    |
| Tail                          | 73      | 137    |

| <b>No Concretions</b> | Present | Absent |
|-----------------------|---------|--------|
| Skull                 | 13      | 14     |
| Torso                 | 11      | 16     |
| Limbs                 | 11      | 16     |
| Tail                  | 7       | 20     |

| <b>Concretions Only</b> | Present | Absent |
|-------------------------|---------|--------|
| Skull                   | 16      | 5      |
| Torso                   | 16      | 5      |
| Limbs                   | 6       | 15     |
| Tail                    | 8       | 13     |

Is concretion formation dependent on anatomical region?

| <b>4 Regions</b>          | Skull | Torso | Limbs | Tail |
|---------------------------|-------|-------|-------|------|
| Present not in concretion | 2     | 1     | 3     | 6    |
| Present in concretion     | 14    | 15    | 3     | 2    |

| <b>2 Regions</b>          | Core | Periphery |
|---------------------------|------|-----------|
| Present not in concretion | 3    | 9         |
| Present in concretion     | 29   | 5         |