





| Seismic Issue                               | March 2011 Design Basis   | October 2012 Design Basis  |
|---|---|--|
| Time History Seeds                          | Northridge Mt Baldy seed, using SRP 3.7.1<br>Option 1 Approach 2                            | Northridge Mt Baldy seed, using SRP 3.7.1<br>Option 1 Approach 1 |
| Seismic Design Basis Models                 | Stand Alone Structures  | Combined Structures, including ESWPC                             |
| Structure-Soil-Structure Interaction (SSSI) | PS/B Finite Element Model (FEM) and R/B<br>complex & A/B Lumped Mass Stick<br>Models (LMSM) | Combined R/B complex and T/B using<br>integrated FEM model       |
| Sliding Stability                           | Quasi-static Approach   | Combined Structures  |
|   |   | Non-linear analysis, using SRP 3.7.1<br>Option 2                 |
| Soil Profiles                               | Selected 8 Generic Soil Profiles  | Justified 6 Generic Soil Profiles                                |
| Embedment Effects                           | Surface Mounted Foundations   | 4-Sided Embedded Foundations                                     |
| Gap Between Structures                      | 4 inches between all structures   | Combined R/B complex, 10 feet between R/B complex & T/B          |
| Foundation Analysis                         | Stand Alone Structures  | Combined Structures  |
| Effect of Concrete Cracking                 | Best Estimate Stiffnesses   | Full (100%) Stiffness, and                                       |
|   |   | Reduced (50%) Stiffness both analyzed                            |
| Steel-Concrete (SC) Modules                 | Formulas from ACI 349 and JEAG/N690<br>Provisions   | Testing performed to confirm adequacy of formulas (ACI 349)      |





|   | Integrated Approach (cont) |   |                                       |  |                                      |                        |  |  |  |  |  |
|---|----------------------------|---|---------------------------------------|--|--------------------------------------|------------------------|--|--|--|--|--|
| I | DCD Roadmap Link Database  |   |                                       |  |                                      |                        |  |  |  |  |  |
|   | THE                        |   | DCD R                                 | admap                                    |                                      |                        |  |  |  |  |  |
|   | 3.7 - Seismic<br>Design    | 3.7.1 - Seismic<br>Design +<br>Parameters | 3.7.2 - Seismic<br>System<br>Analysis | 3.7.3 - Seismic<br>Subsystem<br>Analysis | 3.7.4 - Seismic<br>Instrumentation   |                        |  |  |  |  |  |
|   |                            |   |                                       |  |                                      |                        |  |  |  |  |  |
|   | 3.8 •                      | 3.8.1 -<br>Concrete<br>Containment        | 3.8.2 - Steel<br>Containment          | 3.8.3 - Internal<br>Structures           | 3.8.4 - Other<br>Cat I<br>Structures | 3.8.5 -<br>Foundations |  |  |  |  |  |
|   | MUAPs -                    | ]   |                                       |  |                                      | 0                      |  |  |  |  |  |
|   |                            |   |                                       |  |                                      |                        |  |  |  |  |  |
|   | ADS-UAP-20120018-A7        |   |                                       |  |                                      |                        |  |  |  |  |  |





| ntegr                               | ated A                                    | pproa                                 | ch (cont                                 | )                                    | (                     |                               |  |  |  |  |
|-------------------------------------|---|---------------------------------------|--|--------------------------------------|-----------------------|-------------------------------|--|--|--|--|
| DCD Roadmap Link Database           |   |                                       |  |                                      |                       |                               |  |  |  |  |
| THE                                 |   | DCD R                                 | padmap                                   |                                      | 1                     |                               |  |  |  |  |
| 3.7 - Seismic<br>Design             | 3.7.1 - Seismic<br>Design +<br>Parameters | 3.7.2 - Seismic<br>System<br>Analysis | 3.7.3 - Seismic<br>Subsystem<br>Analysis | 3.7.4 - Seismic<br>Instrumentation   |                       |                               |  |  |  |  |
| 3.8 •                               | 3.8.1 -<br>Concrete<br>Containment        | 3.8.2 - Steel<br>Containment          | 3.8.3 - Internal<br>Structures           | 3.8.4 - Other<br>Cat I<br>Structures | 3.8.5 -<br>Foundatio  | ons                           |  |  |  |  |
| MUAPs •<br>MUAP-10006 DC<br>Rev 3 • | ocument                                   |                                       |  |                                      |                       |                               |  |  |  |  |
| Da<br>MUAP-11007 →<br>MUAP-12002 →  | atabase Links                             | DCD Roadmap                           | Database Links - I                       | MUAP-10006 Rev 3                     |                       |                               |  |  |  |  |
|                                     |   | MUAP Se<br>MUAP-10006 Rev 3           | ection_Supporting_Document<br>2.2.3      | Page_Supporting_Document             | Subsection<br>3.7.1.1 | Page Topic<br>3.7-92 Duration |  |  |  |  |
|                                     | II.                                       |                                       |  | 4DS-U                                | AP-20120              | 018-A10                       |  |  |  |  |











