# APPENDIX Q

DETAILED MATRIX OF THE BAAQMD REFINERIES
CARFG2 AND RELATED CLEAN FUELS REFINERY MODIFICATIONS

| Bay Area Refiners Project Description | CHEVRON (Richmond) | | EXXON (Benicia) | | SHELL (Martinez) | | TOSCO (Martinez) | | UNOCAL (Rodeo) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | New | Mod. | New | Mod. | New | Mod. | New | Mod. | New | Mod. |
| Air Separation Unit | | | | | | | | X | | |
| Alkylation Plant | | X | | X | X | | | X | | |
| Benzene Reduction (Saturation) Unit | | X | X | | | | X | | X | |
| Boilers | | | | | X | | X | | X | |
| Butamer Plant | X | | | | | | | | | |
| Butane Isomerization Unit | | | | | X | | X | | | |
| Butane/Butlyene Selective Hydrogenation Unit | | X | | | | | | | | |
| C4 Treater | X | | | | | | | | | |
| C5/C6 Isomerization Unit | | | X | | X | | | | | |
| Catalytic Hydrodesulfurization (HDS) | | | | | | | | X | | |
| Catalytic Reforming Unit | | | X | | X | | | | | |
| Cogeneration Plant | | | | | X | | | | | |
| Cooling Tower | X | | | | X | | | | X | |
| Depropanizer | | X | | | | | | | | |
| Debutanizer | | X | | | | | | | | |
| Deisobutanizer Column | | X | | | | | | | | |
| Deisopentanizer | | | | | | | | | X | |
| Distillate Hydrotreater | | | | | X | | | | | |
| Distillation Unit | | | | | X | | | | | |
| FCC Feed Hydrotreater | | | | | | | x | | | |
| FCC Gasoline Hydrotreating Plant | | X | | | | | | | | |
| FCC Hydrodesulfurization Unit | | | | | | | X | | | |
| Flare System | | X | | | X | | | X | | |
| Fluid Catalytic Cracking Unit (FCCU) | | X | | | | | | | | |
| Gas Plant Fractionator | | | | | | | | X | | |
| Gasoline Blender | | | | | | | | | | X |
| Gasoline Hydrotreater | | | | | X | | | | | |
| Hydrocracker | | | | X | | | | X | | |
| Hydrogen Plant | | | | X | X | | | X | X | |
| Hydrogen Recovery Plant | | X | | | | | | | | |
| Isomerization Unit | | | | | | | | | | X |
| Light Cracked Gasoline Treater | | | | | X | | | | | |
| LPG Sphere | X | | | | | | | | | |
| Methanol Feed Tank | | | X | | | | | | | |
| Mid-Barrel Treater | | | X | | | | | | | |
| MTBE Process Unit | | | X | | | | | | | |
| Naptha Hydrodesulfurization Unit | | | | | | | X | | | |
| Pentane Isomerization Unit | | | | | | | X | | | |
| Process Wastewater System | | | | | | | | | | X |
| Reformate Splitting Column | X | | | | | | | | X | |
| Selective Catalytic Reduction (SCR) | | | X | | | | | | | |
| Selective Hydrogenation Unit | | | | | | | X | | | |
| Storage Tanks | X | | X | | X | | X | | X | |
| Sulfur Plant | | X | | | X | | | | | |
| Tertiary Amyl Methyl Ether (TAME) Plant | X | | | | | | X | | | |