$$E_{s,s} = V_{ss\sigma}$$
$$E_{s,x} = -E_{x,s} = lV_{sp\sigma}$$
$$E_{s,y} = -E_{y,s} = mV_{sp\sigma}$$
$$E_{s,z} = -E_{z,s} = nV_{sp\sigma}$$
$$E_{s,xy} = \sqrt{3}lmV_{sd\sigma}$$
$$E_{s,yz} = \sqrt{3}mnV_{sd\sigma}$$
$$E_{s,zx} = \sqrt{3}nlV_{sd\sigma}$$
$$E_{s,x^2-y^2} = \frac{\sqrt{3}}{2}(l^2 - m^2)V_{sd\sigma}$$
$$E_{s,3z^2-r^2} = [n^2 - (l^2 + m^2)/2]V_{sd\sigma}$$

$$E_{x,x} = l^2V_{pp\sigma} + (1 - l^2)V_{pp\pi}$$
$$E_{x,y} = E_{y,x} = lmV_{pp\sigma} - lmV_{pp\pi}$$
$$E_{x,z} = E_{z,x} = lnV_{pp\sigma} - lnV_{pp\pi}$$
$$E_{x,xy} = -E_{xy,x} = \sqrt{3}l^2mV_{pd\sigma} + m(1 - 2l^2)V_{pd\pi}$$
$$E_{x,yz} = -E_{yz,x} = \sqrt{3}lmnV_{pd\sigma} - 2lmnV_{pd\pi}$$
$$E_{x,zx} = -E_{zx,x} = \sqrt{3}l^2nV_{pd\sigma} + n(1 - 2l^2)V_{pd\pi}$$
$$E_{x,x^2-y^2} = -E_{x^2-y^2,x} = \frac{\sqrt{3}}{2}l(l^2 - m^2)V_{pd\sigma} + l(1 - l^2 + m^2)V_{pd\pi}$$
$$E_{x,3z^2-r^2} = -E_{3z^2-r^2,x} = l[n^2 - (l^2 + m^2)/2]V_{pd\sigma} - \sqrt{3}ln^2V_{pd\pi}$$

$$E_{y,y} = m^2V_{pp\sigma} + (1 - m^2)V_{pp\pi}$$
$$E_{y,z} = E_{z,y} = mnV_{pp\sigma} - mnV_{pp\pi}$$
$$E_{y,xy} = -E_{y,xy} = \sqrt{3}m^2lV_{pd\sigma} + l(1 - 2m^2)V_{pd\pi}$$
$$E_{y,yz} = -E_{yz,y} = \sqrt{3}m^2nV_{pd\sigma} + n(1 - 2m^2)V_{pd\pi}$$
$$E_{y,zx} = -E_{zx,y} = \sqrt{3}mnlV_{pd\sigma} - 2mnlV_{pd\pi}$$
$$E_{y,x^2-y^2} = \frac{\sqrt{3}}{2}m(l^2 - m^2)V_{pd\sigma} - m(1 + l^2 - m^2)V_{pd\pi}$$
$$E_{y,3z^2-r^2} = m[n^2 - (l^2 + m^2)/2]V_{pd\sigma} - \sqrt{3}mn^2V_{pd\pi}$$

$$E_{z,z} = n^2V_{pp\sigma} + (1 - n^2)V_{pp\pi}$$
$$E_{z,xy} = -E_{xy,z} = \sqrt{3}mnlV_{pd\sigma} - 2mnlV_{pd\pi}$$
$$E_{z,yz} = -E_{yz,z} = \sqrt{3}n^2mV_{pd\sigma} + m(1 - 2n^2)V_{pd\pi}$$
$$E_{z,zx} = -E_{zx,z} = \sqrt{3}n^2lV_{pd\sigma} + l(1 - 2n^2)V_{pd\pi}$$
$$E_{z,x^2-y^2} = -E_{x^2-y^2,z} = \frac{\sqrt{3}}{2}n(l^2 - m^2)V_{pd\sigma} - n(l^2 - m^2)V_{pd\pi}$$
$$E_{z,3z^2-r^2} = -E_{3z^2-r^2,z} = n[n^2 - (l^2 + m^2)/2]V_{pd\sigma} + \sqrt{3}n(l^2 + m^2)V_{pd\pi}$$

$$E_{xy,xy} = 3l^2m^2V_{dd\sigma} + (l^2 + m^2 - 4l^2m^2)V_{dd\pi} + (n^2 + l^2m^2)V_{dd\delta}$$
$$E_{xy,yz} = E_{yz,xy} = 3lm^2nV_{dd\sigma} + ln(1 - 4m^2)V_{dd\pi} + ln(m^2 - 1)V_{dd\delta}$$

$$E_{xy,zx} = E_{zx,xy} = 3l^2mnV_{dd\sigma} + mn(1-4l^2)V_{dd\pi} + mn(l^2-1)V_{dd\delta}$$
$$E_{xy,x^2-y^2} = E_{x^2-y^2,xy} = \tfrac{3}{2}lm(l^2-m^2)V_{dd\sigma} + 2lm(m^2-l^2)V_{dd\pi} + [lm(l^2-m^2)/2]V_{dd\delta}$$
$$E_{xy,3z^2-r^2} = E_{3z^2-r^2,xy} = \sqrt{3}\left[lm(n^2-(l^2+m^2)/2)V_{dd\sigma} - 2lmn^2V_{dd\pi} + [lm(1+n^2)/2]V_{dd\delta}\right]$$

$$E_{yz,yz} = 3m^2n^2V_{dd\sigma} + (m^2+n^2-4m^2n^2)V_{dd\pi} + (n^2+m^2n^2)V_{dd\delta}$$
$$E_{yz,zx} = E_{zx,yz} = 3mn^2lV_{dd\sigma} + ml(1-4n^2)V_{dd\pi} + ml(n^2-1)V_{dd\delta}$$
$$E_{yz,x^2-y^2} = \tfrac{3}{2}mn(l^2-m^2)V_{dd\sigma} - mn[1+2(l^2-m^2)]V_{dd\pi} + mn[1+(l^2-m^2)/2]V_{dd\delta}$$
$$E_{yz,3z^2-r^2} = \sqrt{3}\left[mn(n^2-(l^2+m^2)/2)V_{dd\sigma} + mn(l^2+m^2-n^2)V_{dd\pi} - [mn(l^2+m^2)/2]V_{dd\delta}\right]$$

$$E_{zx,zx} = 3n^2l^2V_{dd\sigma} + (n^2+l^2-4n^2l^2)V_{dd\pi} + (l^2+n^2l^2)V_{dd\delta}$$
$$E_{zx,x^2-y^2} = E_{x^2-y^2,zx} = \tfrac{3}{2}nl(l^2-m^2)V_{dd\sigma} + nl[1-2(l^2-m^2)]V_{dd\pi} - nl[1-(l^2-m^2)/2]V_{dd\delta}$$
$$E_{zx,3z^2-r^2} = E_{3z^2-r^2,zx} = \sqrt{3}\left[ln(n^2-(l^2+m^2)/2)V_{dd\sigma} + ln(l^2+m^2-n^2)V_{dd\pi} - [ln(l^2+m^2)/2]V_{dd\delta}\right]$$

$$E_{x^2-y^2,x^2-y^2} = \tfrac{3}{4}(l^2-m^2)^2V_{dd\sigma} + [l^2+m^2-(l^2-m^2)^2]V_{dd\pi} + [n^2+(l^2-m^2)^2/4]V_{dd\delta}$$
$$E_{x^2-y^2,3z^2-r^2} = E_{3z^2-r^2,x^2-y^2} = \sqrt{3}\left[(l^2-m^2)[n^2-(l^2+m^2)/2]V_{dd\sigma}/2 + n^2(m^2-l^2)V_{dd\pi} + [(1+n^2)(l^2-m^2)/4]V_{dd\delta}\right]$$

$$E_{3z^2-r^2,3z^2-r^2} = [n^2-(l^2+m^2)/2]^2V_{dd\sigma} + 3n^2(l^2+m^2)V_{dd\pi} + \tfrac{3}{4}(l^2+m^2)^2V_{dd\delta}$$