

**DOCKET**  
**09-AFC-7**

DATE AUG 13 2010

RECD. AUG 13 2010

August 13, 2010

Alan Solomon  
Project Manager  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814

RE: **Palen Solar Power Project, Docket No. 09-AFC-7**  
*Section: Hazardous Materials*

Dear Mr. Solomon:

Please find attached an updated "Hazmat Table 5.6-3R" for the PSPP Reconfigured Alternatives 2 & 3. Updates to the original table from the Proposed Project reflect the re-engineering of the eastern units for the two new proposed alternative reconfigurations.

If you have any questions on this submittal, please feel free to contact me directly.

Sincerely,



Alice Harron  
Senior Director, Development

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Sulfuric Acid, 29.5% solution CAS No. 7664-93-9	High toxicity; Hazard class – Corrosive, water reactive	1,000 lbs	PEL: 1 milligram per cubic meter (mg/m <sup>3</sup> )	Contained in batteries: 4,000 gal total inventory.	Isolated from incompatible chemicals and secondary containment
Carbon Dioxide CAS No. 124-38-9	Low toxicity; Hazard class – Nonflammable gas	Not Applicable	TLV: 5,000 ppm (9,000 mg/m <sup>3</sup> ) TWA	Carbon steel tank; 30 tons maximum onsite inventory	Carbon steel tank with crash posts
Therminol VP-1 Biphenyl (26.5%) CAS No. 92-52-4  Diphenyl ether (73.5%) CAS No. 101-84-8	Moderate toxicity, Hazard class – Irritant; Combustible Liquid (Class III-B)	Biphenyl = 100 lbs (45.4 kg)  Diphenyl ether = Not applicable	Biphenyl = PEL: 0.2 milliliters per cubic meter (ml/m <sup>3</sup> ) (8-hr TWA) TLV: 0.2 ml/m <sup>3</sup> (1 mg/m <sup>3</sup> ) (8-hr TWA)  Diphenyl ether = TLV: 1 ml/m <sup>3</sup> (8-hr TWA) TLV: 2 ml/m <sup>3</sup> (15-min TWA) PEL: 1 ml/m <sup>3</sup> (7 mg/m <sup>3</sup> ) (15-min TWA)	4,255,000 gal in system no additional onsite storage	Continuous monitoring of pressure in piping network; routine inspections (sight, sound, smell) by operations staff; isolation valves throughout piping network to minimize fluid loss in the event of a leak; prompt clean up and repair

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

<b>Hazardous Material and CAS No.<sup>1</sup></b>	<b>Relative Toxicity<sup>2</sup> and Hazard Class<sup>3</sup></b>	<b>RQ<sup>4</sup> pounds (kg)</b>	<b>Permissible Exposure Limit (PEL)</b>	<b>Storage Description; Capacity</b>	<b>Storage Practices and Special Handling Precautions</b>
Lube Oil CAS No. 64742-65-0	Low toxicity Hazard class – NA	Not applicable	None established	Carbon steel tanks: 20,000 gallons in equipment and piping additional maintenance Inventory of up to 1,100 gallons in 55-gallon steel drums	Secondary containment area for each tank and for maintenance inventory
Mineral Insulating Oil CAS No. 8042-47-5	Low toxicity Hazard class – NA	Not applicable	None established	Carbon steel transformers Total onsite inventory of 72,000 gallons	Used only in transformers, secondary containment for each transformer
Diesel Fuel CAS No. 68476-34-6	Low toxicity; Hazard class – Combustible Liquid	Not applicable	PEL: none established TLV: 100 mg/m <sup>3</sup> (ACGIH)	Carbon steel tank (2,300 gallon [generator & fire water pump engine])	Stored only in fuel tank of emergency engine, secondary containment
Hydrogen	Low toxicity; Hazard class – Flammable gas	Not applicable	None Established	In generator cooling loop and “tube trailer”; piping system inventory 700 pounds; plus 1,300 lbs in storage trailer	Pressure safety tank, crash posts, pressure relief valves
Nitrogen CAS No. 7727-37-9	Low toxicity; Hazard class – Non-Flammable Gas	Not applicable	None established	Carbon steel tank: 15,000 lbs total inventory	Carbon steel tank with crash posts

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Hydraulic fluid CAS No. 64741-89-5	Low to moderate toxicity; Hazard class – Class IIIB Combustible Liquid	Not applicable	TWA (oil mist): 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	Carbon steel tanks and sumps; 1000 gallons in equipment, maintenance inventory of 220 gallons in 55-gallon steel drums	Found only in equipment with a small maintenance inventory; maintenance inventory stored within secondary containment
Welding gas Acetylene CAS No. 74-86-2	Moderate toxicity; Hazard class – Toxic	10,000 lbs	PEL: none established	Steel cylinders; 200 cubic feet each 1,600 cubic feet total on site	Inventory management, isolated from incompatible chemicals
Welding gas Oxygen CAS No. 7782-44-7	Low toxicity; Hazard class – Oxidizer	Not applicable	PEL: none established	Steel cylinders; 200 cubic feet each 1,600 cubic feet total on site	Inventory management, isolated from incompatible chemicals
Welding gas Argon CAS No. 7440-37-1	Low toxicity; Hazard class – Non-flammable Gas	Not applicable	PEL: none established	Steel cylinders; 200 cubic feet each 1,600 cubic feet total on site	Inventory management

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Activated Carbon CAS No. 7440-44-0	Non-toxic (when unsaturated), low to moderate toxicity when saturated, depending on the adsorbed material; Hazard class – combustible solid	Not Applicable	TWA (total particulate): 15 mg/m <sup>3</sup> TWA (respirable fraction): 5 mg/m <sup>3</sup> TLV (graphite, all forms except graphite fibers): 2 mg/m <sup>3</sup> TWA	Used in four x 2,000 lb canisters, 8,000 lbs total inventory, no additional storage	No excess inventory stored on site, prompt disposal when spent
Calcium Hypochlorite 100% CAS No. 7778-54-3	Moderate toxicity; Hazard Class – Corrosive, Irritant	10 lbs	PEL: none established Acute oral toxicity (LD50): 850 mg/kg [Rat].	Minimal onsite storage for water treatment, not expected to exceed 100 lbs	Inventory management, isolated from incompatible chemicals
Water treatment chemical Sodium Carbonate (soda ash)	Low toxicity; Hazard class – Irritant	Not Applicable	TBD	20 tons	Stored in steel silos. Inventory management, isolated from incompatible chemicals
Water treatment chemical Lime (calcium oxide)	Moderate toxicity; Hazard class - Irritant	Not Applicable	TBD	20 tons	Stored in steel silos. Inventory management, isolated from incompatible chemicals
Water treatment chemical Magnesium Chloride	Non-toxic; Hazard class – NA	Not Applicable	TBD	1,000 gallons	Inventory management

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical Sodium Bisulfate (aka sodium hydrogen sulfate)	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bisulfite = PEL: none established: TLV: 5 mg/m <sup>3</sup> TWA	1,000 gallons	Inventory management, isolated from incompatible chemicals
Boiler water treatment chemical Ferric Sulfate (35% solution) CAS Number 10028-22-5	Moderate toxicity; Hazard class - Irritant	1,000 lbs	TBD	20,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Tri-Act 1800 <i>or equivalent</i> Cyclohexylamine (5 – 10%) Monoethanolamine (10 – 30%) Methoxypropylamine (10 – 30%)	High toxicity; Hazard class – Corrosive, Class II Combustible liquid	Not Applicable	Cyclohexylamine = TLV: 10 ppm (41 mg/m <sup>3</sup> ) Monoethanolamine = TLV: 3 ppm (7.5 mg/m <sup>3</sup> ) TWA: 3 ppm (7.5 mg/m <sup>3</sup> ) STEL: 6 ppm (15 mg/m <sup>3</sup> ) Methoxypropylamine = TLV: 5 ppm TWA STEL: 15 ppm	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical NALCO Eliminox Carbohydazide (5 - 10%) or equivalent	Moderate toxicity; Hazard class – Sensitizer	Not Applicable	Carbohydazide = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT185 Phosphoric Acid (60 -100%) or equivalent	High toxicity; Hazard class – Corrosive	Not Applicable	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT177 or equivalent Phosphoric acid (30%)	Moderate toxicity; Hazard class – Irritant	Not Applicable	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT190 or equivalent	Low toxicity; Hazard class – Irritant	Not Applicable	None established for mixture	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Acti-Brom (R) 7342 or equivalent Sodium bromide	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bromide = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

<b>Hazardous Material and CAS No.<sup>1</sup></b>	<b>Relative Toxicity<sup>2</sup> and Hazard Class<sup>3</sup></b>	<b>RQ<sup>4</sup> pounds (kg)</b>	<b>Permissible Exposure Limit (PEL)</b>	<b>Storage Description; Capacity</b>	<b>Storage Practices and Special Handling Precautions</b>
Water treatment chemical NALCO pHreedom® 5200M <i>or equivalent</i> Sodium salt of phosphonomethylated diamine	Low to moderate toxicity; Hazard class – Irritant	Not Applicable	Sodium salt of phosphonomethylated diamine = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO PCL-1346	Low toxicity; Hazard class – Irritant	Not Applicable	None established for mixture	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Permacare (R) PC-7408 Sodium bisulfite	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bisulfite = PEL: none established: TLV: 5 mg/m <sup>3</sup> TWA	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO BT-3000 <i>or equivalent</i> Sodium hydroxide Sodium tripolyphosphate	High toxicity; Hazard class – Corrosive	Not Applicable	Sodium hydroxide = PEL: 2 mg/m <sup>3</sup> Sodium tripolyphosphate = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment



**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPF Alternative Configuration 2)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Boiler water treatment chemical, pH adjustment Sodium Hydroxide (50%) CAS Number 1310-73-2	High toxicity; Hazard class – Corrosive	1,000 lbs	Sodium hydroxide = PEL: 2 mg/m <sup>3</sup>	20,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 8338 <i>or equivalent</i> Sodium nitrite Sodium tolytriazole Sodium hydroxide	Moderate toxicity; Hazard class – Toxic	Not Applicable	Sodium nitrite = PEL: none established Sodium tolytriazole = PEL: none established Sodium hydroxide = PEL: 2 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical 93%-98% sulfuric acid CAS No. 7664-93-9	High toxicity; Hazard class – Corrosive, water reactive	1,000 lbs	PEL: 1 mg/m <sup>3</sup>	2,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical Sodium Hypochlorite (13% solution) CAS No. 7689-52-9	High toxicity; Hazard class – Poison-B, Corrosive	100 lbs	Workplace Environmental Exposure Limit (WEEL) - STEL: 2 mg/m <sup>3</sup> PEL: 0.5 ppm (TWA), STEL: 1 ppm as Chlorine TLV: 1 ppm (TWA), STEL: 3 ppm as Chlorine	4,000 gallons	Inventory management, isolated from incompatible chemicals
Oxygen Scavenger Reagent Acetic Acid 60% CAS No. 64-19-7 Iodine 20% CAS No. 7553-56-2 De-ionized water 20% CAS No. 7732-18-5	Moderate toxicity; Hazard Class – Corrosive, Irritant	5,000 lbs	PEL: 10 ppm TWA PEL: 0.1 ppm N/A	Minimal onsite storage for water treatment, not expected to exceed 100 lbs	Inventory management, isolated from incompatible chemicals
Boiler water treatment oxygen scavenger Carbohydrazide CAS No. 497-18-7	High toxicity; Hazard class – Irritant	Not applicable	Carbohydrazide = PEL: none established	1,200 gallons	Inventory management, isolated from incompatible chemicals

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 2)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Herbicide Roundup® or equivalent CAS No. 38641-94-0	Low toxicity; Hazard class – Irritant	Not applicable	Isopropylamine salt of glyphosphate = no specific occupational exposure has been established	No onsite storage, brought on site by licensed contractor, used immediately	No excess inventory stored on site
Soil stabilizer Active ingredient: acrylic or vinyl acetate polymer or equivalent CAS No. Active ingredient is 'Not Hazardous'	Non-toxic; Hazard class – NA	Not applicable	None established	No onsite storage, supplied in 55-gallon drums or 400-gallon totes, used immediately	No excess inventory stored on site

<sup>1</sup> CAS No. – Chemical Abstracts Service registry number. This number is unique for each chemical.

<sup>2</sup> Low toxicity is used to describe materials with an NFPA Health rating of 0 or 1. Moderate toxicity is used describe materials with an NFPA rating of 2. High toxicity is used to describe materials with an NFPA rating of 3. Extreme toxicity is used to describe materials with an NFPA rating of 4.

<sup>3</sup> NA denotes materials that do not meet the criteria for any hazard class defined in the 1997 Uniform Fire Code.

<sup>4</sup> RQ - Reportable Quantity for hazardous substance as designated under section 102(a) defined under CERCLA. (To note: As previously discussed in the text, Table 5.6-3 includes those chemicals stored or used in excess of 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases. These quantities coincide with the thresholds for reporting under California's HMBP requirements).

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Sulfuric Acid, 29.5% solution CAS No. 7664-93-9	High toxicity; Hazard class – Corrosive, water reactive	1,000 lbs	PEL: 1 milligram per cubic meter (mg/m <sup>3</sup> )	Contained in batteries: 4,000 gal total inventory	Isolated from incompatible chemicals and secondary containment
Carbon Dioxide CAS No. 124-38-9	Low toxicity; Hazard class – Nonflammable gas	Not Applicable	TLV: 5,000 ppm (9,000 mg/m <sup>3</sup> ) TWA	Carbon steel tank; 30 tons maximum onsite inventory	Carbon steel tank with crash posts
Therminol VP-1 Biphenyl (26.5%) CAS No. 92-52-4  Diphenyl ether (73.5%) CAS No. 101-84-8	Moderate toxicity, Hazard class – Irritant; Combustible Liquid (Class III-B)	Biphenyl = 100 lbs (45.4 kg)  Diphenyl ether = Not applicable	Biphenyl = PEL: 0.2 milliliters per cubic meter (ml/m <sup>3</sup> ) (8-hr TWA) TLV: 0.2 ml/m <sup>3</sup> (1 mg/m <sup>3</sup> ) (8-hr TWA)  Diphenyl ether = TLV: 1 ml/m <sup>3</sup> (8-hr TWA) TLV: 2 ml/m <sup>3</sup> (15-min TWA) PEL: 1 ml/m <sup>3</sup> (7 mg/m <sup>3</sup> ) (15-min TWA)	4,630,000 gal in system, no additional onsite storage.	Continuous monitoring of pressure in piping network; routine inspections (sight, sound, smell) by operations staff; isolation valves throughout piping network to minimize fluid loss in the event of a leak; prompt clean up and repair

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)**

<b>Hazardous Material and CAS No.<sup>1</sup></b>	<b>Relative Toxicity<sup>2</sup> and Hazard Class<sup>3</sup></b>	<b>RQ<sup>4</sup> pounds (kg)</b>	<b>Permissible Exposure Limit (PEL)</b>	<b>Storage Description; Capacity</b>	<b>Storage Practices and Special Handling Precautions</b>
Lube Oil CAS No. 64742-65-0	Low toxicity Hazard class – NA	Not applicable	None established	Carbon steel tanks, 20,000 gallons in equipment and piping, additional maintenance inventory of up to 1,000 gallons in 55-gallon steel drums	Secondary containment area for each tank and for maintenance inventory
Mineral Insulating Oil CAS No. 8042-47-5	Low toxicity Hazard class – NA	Not applicable	None established	Carbon steel transformers; Total onsite inventory of 72,000 gallons	Used only in transformers, secondary containment for each transformer
Diesel Fuel CAS No. 68476-34-6	Low toxicity; Hazard class – Combustible Liquid	Not applicable	PEL: none established TLV: 100 mg/m <sup>3</sup> (ACGIH)	Carbon steel tank (2,300 gallon [generator & fire water pump engine])	Stored only in fuel tank of emergency engine, secondary containment
Hydrogen	Low toxicity; Hazard class – Flammable gas	Not applicable	None Established	In generator cooling loop and “tube trailer”; piping system inventory 700 pounds; plus 1,300 lbs in storage trailer	Pressure safety tank, crash posts, pressure relief valves
Nitrogen CAS No. 7727-37-9	Low toxicity; Hazard class – Non-Flammable Gas	Not applicable	None established	Carbon steel tank; 15,000 lbs total inventory	Carbon steel tank with crash posts

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Hydraulic fluid CAS No. 64741-89-5	Low to moderate toxicity; Hazard class – Class IIIB Combustible Liquid	Not applicable	TWA (oil mist): 5 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	Carbon steel tanks and sumps: 1,000 gallons in equipment, maintenance inventory of 220 gallons in 55-gallon steel drums	Found only in equipment with a small maintenance inventory; maintenance inventory stored within secondary containment
Welding gas Acetylene CAS No. 74-86-2	Moderate toxicity; Hazard class – Toxic	10,000 lbs	PEL: none established	Steel cylinders; 200 cubic feet each. 1,600 cubic feet total on site	Inventory management, isolated from incompatible chemicals
Welding gas Oxygen CAS No. 7782-44-7	Low toxicity; Hazard class – Oxidizer	Not applicable	PEL: none established	Steel cylinders; 200 cubic feet each. 1,600 cubic feet total on site	Inventory management, isolated from incompatible chemicals
Welding gas Argon CAS No. 7440-37-1	Low toxicity; Hazard class – Non-flammable Gas	Not applicable	PEL: none established	Steel cylinders; 200 cubic feet each. 1,600 cubic feet total on site	Inventory management

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Activated Carbon CAS No. 7440-44-0	Non-toxic (when unsaturated), low to moderate toxicity when saturated, depending on the adsorbed material; Hazard class – combustible solid	Not Applicable	TWA (total particulate): 15 mg/m <sup>3</sup> TWA (respirable fraction): 5 mg/m <sup>3</sup> TLV (graphite, all forms except graphite fibers): 2 mg/m <sup>3</sup> TWA	Used in four x 2,000-lb canisters, 8,000 lbs total inventory. no additional storage	No excess inventory stored on site, prompt disposal when spent
Calcium Hypochlorite 100% CAS No. 7778-54-3	Moderate toxicity; Hazard Class – Corrosive, Irritant	10 lbs	PEL: none established Acute oral toxicity (LD50): 850 mg/kg [Rat].	Minimal onsite storage for water treatment, not expected to exceed 100 lbs	Inventory management, isolated from incompatible chemicals
Water treatment chemical Sodium Carbonate (soda ash)	Low toxicity; Hazard class – Irritant	Not Applicable	TBD	20 tons	Stored in steel silos. Inventory management, isolated from incompatible chemicals
Water treatment chemical Lime (calcium oxide)	Moderate toxicity; Hazard class - Irritant	Not Applicable	TBD	20 tons	Stored in steel silos. Inventory management, isolated from incompatible chemicals
Water treatment chemical Magnesium Chloride	Non-toxic; Hazard class – NA	Not Applicable	TBD	1,000 gallons	Inventory management

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical Sodium Bisulfate (aka sodium hydrogen sulfate)	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bisulfite = PEL: none established: TLV: 5 mg/m <sup>3</sup> TWA	1,000 gallons	Inventory management, isolated from incompatible chemicals
Boiler water treatment chemical Ferric Sulfate (35% solution) CAS Number 10028-22-5	Moderate toxicity; Hazard class - Irritant	1,000 lbs	TBD	20,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Tri-Act 1800 <i>or equivalent</i> Cyclohexylamine (5 – 10%) Monoethanolamine (10 – 30%) Methoxypropylamine (10 – 30%)	High toxicity; Hazard class – Corrosive, Class II Combustible liquid	Not Applicable	Cyclohexylamine = TLV: 10 ppm (41 mg/m <sup>3</sup> ) Monoethanolamine = TLV: 3 ppm (7.5 mg/m <sup>3</sup> ) TWA: 3 ppm (7.5 mg/m <sup>3</sup> ) STEL: 6 ppm (15 mg/m <sup>3</sup> ) Methoxypropylamine = TLV: 5 ppm TWA STEL: 15 ppm	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment



Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical NALCO Elimin-Ox Carbohydazide (5 - 10%) <i>or equivalent</i>	Moderate toxicity; Hazard class – Sensitizer	Not Applicable	Carbohydazide = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT185 Phosphoric Acid (60 -100%) <i>or equivalent</i>	High toxicity; Hazard class – Corrosive	Not Applicable	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT177 <i>or equivalent</i> Phosphoric acid (30%)	Moderate toxicity; Hazard class – Irritant	Not Applicable	Phosphoric acid = PEL: 1 mg/m <sup>3</sup> (TWA) TLV: 1 mg/m <sup>3</sup> (TWA), STEL: 3 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 3D Trasar 3DT190 <i>or equivalent</i>	Low toxicity; Hazard class – Irritant	Not Applicable	None established for mixture	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Acti-Brom (R) 7342 <i>or equivalent</i> Sodium bromide	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bromide = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical NALCO pHreedom® 5200M <i>or equivalent</i> Sodium salt of phosphonomethylated diamine	Low to moderate toxicity; Hazard class – Irritant	Not Applicable	Sodium salt of phosphonomethylated diamine = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO PCL-1346	Low toxicity; Hazard class – Irritant	Not Applicable	None established for mixture	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO Permacare (R) PC-7408 Sodium bisulfite	Low toxicity; Hazard class – Irritant	Not Applicable	Sodium bisulfite = PEL: none established: TLV: 5 mg/m <sup>3</sup> TWA	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO BT-3000 <i>or equivalent</i> Sodium hydroxide Sodium tripolyphosphate	High toxicity; Hazard class – Corrosive	Not Applicable	Sodium hydroxide = PEL: 2 mg/m <sup>3</sup> Sodium tripolyphosphate = PEL: none established	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPF Alternative Configuration 3)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Boiler water treatment chemical, pH adjustment Sodium Hydroxide (50%) CAS Number 1310-73-2	High toxicity; Hazard class – Corrosive	1,000 lbs	Sodium hydroxide = PEL: 2 mg/m <sup>3</sup>	20,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical NALCO 8338 <i>or equivalent</i> Sodium nitrite Sodium tolytriazole Sodium hydroxide	Moderate toxicity; Hazard class – Toxic	Not Applicable	Sodium nitrite = PEL: none established Sodium tolytriazole = PEL: none established Sodium hydroxide = PEL: 2 mg/m <sup>3</sup>	Plastic totes, 4 x 400 gallons	Inventory management, isolated from incompatible chemicals and secondary containment
Water treatment chemical 93%-98% sulfuric acid CAS No. 7664-93-9	High toxicity; Hazard class – Corrosive, water reactive	1,000 lbs	PEL: 1 mg/m <sup>3</sup>	2,000 gallons	Inventory management, isolated from incompatible chemicals and secondary containment

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Water treatment chemical Sodium Hypochlorite (13% solution) CAS No. 7689-52-9	High toxicity; Hazard class – Poison-B, Corrosive	100 lbs	Workplace Environmental Exposure Limit (WEEL) - STEL: 2 mg/m <sup>3</sup> PEL: 0.5 ppm (TWA), STEL: 1 ppm as Chlorine TLV: 1 ppm (TWA), STEL: 3 ppm as Chlorine	4,000 gallons	Inventory management, isolated from incompatible chemicals
Oxygen Scavenger Reagent Acetic Acid 60% CAS No. 64-19-7 Iodine 20% CAS No. 7553-56-2 De-ionized water 20% CAS No. 7732-18-5	Moderate toxicity; Hazard Class – Corrosive, Irritant	5,000 lbs	PEL: 10 ppm TWA PEL: 0.1 ppm N/A	Minimal onsite storage for water treatment, not expected to exceed 100 lbs	Inventory management, isolated from incompatible chemicals
Boiler water treatment oxygen scavenger Carbohydrazide CAS No. 497-18-7	High toxicity; Hazard class – Irritant	Not applicable	Carbohydrazide = PEL: none established	1,200 gallons	Inventory management, isolated from incompatible chemicals

**Table 5.6-3R Summary of Special Handling Precautions for Large Quantity Hazardous Materials (PSPP Alternative Configuration 3)**

Hazardous Material and CAS No. <sup>1</sup>	Relative Toxicity <sup>2</sup> and Hazard Class <sup>3</sup>	RQ <sup>4</sup> pounds (kg)	Permissible Exposure Limit (PEL)	Storage Description; Capacity	Storage Practices and Special Handling Precautions
Herbicide Roundup® or equivalent CAS No. 38641-94-0	Low toxicity; Hazard class – Irritant	Not applicable	Isopropylamine salt of glyphosphate = no specific occupational exposure has been established	No onsite storage, brought on site by licensed contractor, used immediately	No excess inventory stored on site
Soil stabilizer Active ingredient: acrylic or vinyl acetate polymer or equivalent CAS No. Active ingredient is 'Not Hazardous'	Non-toxic; Hazard class – NA	Not applicable	None established	No onsite storage, supplied in 55-gallon drums or 400-gallon totes, used immediately	No excess inventory stored on site

<sup>1</sup> CAS No. – Chemical Abstracts Service registry number. This number is unique for each chemical.

<sup>2</sup> Low toxicity is used to describe materials with an NFPA Health rating of 0 or 1. Moderate toxicity is used describe materials with an NFPA rating of 2. High toxicity is used to describe materials with an NFPA rating of 3. Extreme toxicity is used to describe materials with an NFPA rating of 4.

<sup>3</sup> NA denotes materials that do not meet the criteria for any hazard class defined in the 1997 Uniform Fire Code.

<sup>4</sup> RQ - Reportable Quantity for hazardous substance as designated under section 102(a) defined under CERCLA. (To note: As previously discussed in the text, Table 5.6-3 includes those chemicals stored or used in excess of 55 gallons for liquids, 500 pounds for solids, and 200 cubic feet for compressed gases. These quantities coincide with the thresholds for reporting under California's HMBP requirements).

**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA**

***In the Matter of:***  
**APPLICATION FOR CERTIFICATION**  
**for the *PALEN SOLAR POWER PROJECT***

**Docket No. 09-AFC-7**  
**PROOF OF SERVICE**  
**(Revised 7/2/10)**

**APPLICANT**

Alice Harron  
Senior Director of Project Development  
1625 Shattuck Avenue, Suite 270  
Berkeley, CA 94709-1161  
[harron@solarmillennium.com](mailto:harron@solarmillennium.com)

Elizabeth Ingram, Associate  
Associate Developer  
Solar Millennium LLC  
1625 Shattuck Avenue, Suite 270  
Berkeley, CA 94709  
[ingram@solarmillennium.com](mailto:ingram@solarmillennium.com)

Ram Ambatipudi  
Chevron Energy Solutions  
150 E. Colorado Blvd., Ste. 360  
Pasadena, CA 91105  
[rambatipudi@chevron.com](mailto:rambatipudi@chevron.com)

Arrie Bachrach  
AECOM Project Manager  
1220 Avenida Acaso  
Camarillo, CA 93012  
[arrie.bachrach@aecom.com](mailto:arrie.bachrach@aecom.com)

**Co-COUNSEL**

Scott Galati, Esq.  
Galati/Blek, LLP  
455 Capitol Mall, Suite 350  
Sacramento, CA 95814  
[sgalati@qb-llp.com](mailto:sgalati@qb-llp.com)

**Co-COUNSEL**

Peter Weiner  
Matthew Sanders  
Paul, Hastings, Janofsky & Walker LLP  
55 2nd Street, Suite 2400-3441  
San Francisco, CA 94105  
[peterweiner@paulhastings.com](mailto:peterweiner@paulhastings.com)  
[matthewsanders@paulhastings.com](mailto:matthewsanders@paulhastings.com)

**INTERVENORS**

California Unions for Reliable Energy (CURE)  
c/o Tanya A. Gulesserian,  
Marc D. Joseph  
\*Jason W. Holder  
Adams Broadwell Joseph & Cardozo  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080  
[tgulesserian@adamsbroadwell.com](mailto:tgulesserian@adamsbroadwell.com)  
[jholder@adamsbroadwell.com](mailto:jholder@adamsbroadwell.com)\*

Michael E. Boyd, President  
Californians for Renewable Energy, Inc.  
5439 Soquel Drive  
Soquel, CA 95073-2659  
[michaelboyd@sbcglobal.net](mailto:michaelboyd@sbcglobal.net)

Alfredo Figueroa  
Californians for Renewable Energy, Inc.  
424 North Carlton  
Blythe, CA 92225  
[lacunadeaztlan@aol.com](mailto:lacunadeaztlan@aol.com)

Basin and Range Watch  
Kevin Emmerich/Laura Cunningham  
P.O. Box 153  
Baker, CA 92309  
[atomicloadranch@netzero.net](mailto:atomicloadranch@netzero.net)

\*Lisa T. Belenky, Senior Attorney  
Center for Biological Diversity  
351 California St., Suite 600  
San Francisco, CA 94104  
[ibelenky@biologicaldiversity.org](mailto:ibelenky@biologicaldiversity.org)

\*Ileene Anderson  
Public Lands Desert Director  
Center for Biological Diversity  
PMB 447, 8033 Sunset Boulevard  
Los Angeles, CA 90046  
[ianderson@biologicaldiversity.org](mailto:ianderson@biologicaldiversity.org)

**INTERESTED AGENCIES**

Holly L. Roberts, Project Manager Bureau of  
Land Management  
Palm Springs-South Coast Field Office  
1201 Bird Center Drive Palm Springs, CA  
92262  
[CAPSSolarPalen@blm.gov](mailto:CAPSSolarPalen@blm.gov)

California ISO  
[e-recipient@caiso.com](mailto:e-recipient@caiso.com)

**ENERGY COMMISSION**

Robert Weisenmiller  
Commissioner and Presiding Member  
[rweisenm@energy.state.ca.us](mailto:rweisenm@energy.state.ca.us)

Karen Douglas  
Chair and Associate Member  
[kldougla@energy.state.ca.us](mailto:kldougla@energy.state.ca.us)

Raoul Renaud  
Hearing Officer  
[rrenaud@energy.state.ca.us](mailto:rrenaud@energy.state.ca.us)

Alan Solomon  
Project Manager  
[asolomon@energy.state.ca.us](mailto:asolomon@energy.state.ca.us)

Lisa DeCarlo  
Staff Counsel  
[ldecarlo@energy.state.ca.us](mailto:ldecarlo@energy.state.ca.us)

Jennifer Jennings  
Public Adviser's Office  
[publicadviser@energy.state.ca.us](mailto:publicadviser@energy.state.ca.us)

\*indicates change

**DECLARATION OF SERVICE**

I, Carl Lindner, declare that on, August 13, 2010, I served and filed copies of the Hazardous Material Tables for the Reconfigured Alternatives 2 and 3. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solar\\_millennium\\_palen\]](http://www.energy.ca.gov/sitingcases/solar_millennium_palen).

The document has been sent to the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

**(Check all that Apply)**

**FOR SERVICE TO ALL OTHER PARTIES:**

- sent electronically to all email addresses on the Proof of Service list;
- by personal delivery
- by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on the date to those addresses **NOT** marked "email preferred."

**AND**

**For filing with the Energy Commission:**

- sending an original paper copy and one electronic copy, mailed respectively, to the address below (**preferred method**);

**OR**

- depositing in the mail an original and 12 paper copies, along with 13 CDs, as follows:

**CALIFORNIA ENERGY COMMISSION**

Attn: Docket No. 09-AFC-7  
1516 Ninth Street, MS-4  
Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto:docket@energy.state.ca.us)

I declare under penalty of perjury that the foregoing is true and correct, that I am employed in the country where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

