

APPENDIX H
TREE SURVEY REPORT

TREE SURVEY

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ACRONYMS

CEC	California Energy Commission
dbh	diameter at breast height
GPS	geographic positioning system
PPP	Pittsburg Power Plant
WPGS	Willow Pass Generating Station

H1 INTRODUCTION

This report documents the results of a tree survey conducted to address data requests made by the California Energy Commission (CEC) to Mirant Willow Pass, LLC on November 12, 2008. Mirant Willow Pass LLC is proposing the construction and operation of a 550-megawatt generation facility, the Willow Pass Generating Station (WPGS), at the site of the existing Pittsburg Power Plant (PPP) facility owned and operated by the Mirant Delta, LLC (Mirant Delta) in California.

In order to further evaluate visual resources, the CEC has requested a landscape survey identifying existing trees that could provide visual screening for the WPGS. URS conducted a tree survey in November 2008 to determine the relative age and vigor of trees on the PPP site and to identify potential for growth within the next 5 to 10 years and beyond. This report presents the results of this survey.

H2 SURVEY METHODOLOGY

While it is not always possible to precisely determine the age of a tree without coring it, relative age and health can be estimated using measurable parameters such as height, diameter, leaf color, canopy condition, and the presence of dead branches or disease. Based on the known growth characteristics and life cycle of the species involved (Table 1) and the above measurements, it is possible to predict if a tree is expected to continue to grow or likely to decline in the next 5 to 10 years and beyond.

On November 20 and 21, 2008, URS conducted a tree survey at the existing Pittsburg Power Plant. The survey included all trees on Mirant property with the potential to provide a visual screen between the proposed WPGS site and structures and the areas northeast, south, and east of the project site. The following data were collected for each tree surveyed: species, height, diameter, location, and health.

Beginning in the northeastern corner of the property and proceeding south along the existing fence line, each tree was mapped using a geographic positioning system (GPS) handheld receiver and measured with hand tools. For the purpose of this survey, trees were defined as woody, vegetative species that can grow at least 10 feet in height (often exceeding 20 feet in height). Multiple-stemmed shrub species typically reaching a maximum height of less than 10 feet were not surveyed.

Tree height was measured to the tallest point on the crown using a hand-held clinometer, and tree diameter was measured at breast height (4.5 feet above grade) using a standard diameter at breast height (dbh) tape. For each tree, all stems greater than 6 inches in dbh were measured to the nearest inch. The locations of trees smaller than 6 inches in dbh were recorded using GPS, but specific dbh and height measurements were not taken. The location and species of tree saplings and basal sprouts (i.e., those less than 4.5 feet in height and/or less than 2 inches in diameter) was noted in field records, but the trees were not mapped for the purposes of this survey. Standing dead trees were not measured or mapped, and shrub species were noted on aerial photographs, but were not measured or mapped.

All accessible trees were mapped using a hand-held GeoExplorer V Trimble Unit, and tree locations were recorded with a minimum of four available satellites with an average accuracy of 3 feet. In addition, the general location of each GPS data point was hand recorded on aerial photography. These hand-recorded points were then compared against the GPS points to verify the approximate location of each tree. Trees that were recorded with the GPS were numbered 1 through 327. The survey also includes 15 trees that were not directly accessible at the time of

Common Name	Scientific Name	Maximum Height (feet)	Lifespan (years)	Growth Rate (inches/season)
Blackwood acacia	<i>Acacia melanoxylon</i>	30-50	50-150	>36
Crimson bottlebrush	<i>Callistemon citrinus</i>	10-15	<50-150	36
River bottlebrush	<i>Callistemon rigidus</i>	20	<50-150	36
Monterey cypress	<i>Cupressus macrocarpa</i>	80	50-150	>36
Lemon-scented gum	<i>Eucalyptus camaldulensis</i>	>65	50-150	>36
Oregon ash	<i>Fraxinus latifolia</i>	65	>150	36
Privet	<i>Ligustrum lucidum</i>	20	50-150	36
Cajeput tree	<i>Melaleuca linariifolia</i>	35	50-150	36
Bracelet honey myrtle	<i>Melaleuca armillaris</i>	25	50-150	36
Pink melaleuca	<i>Melaleuca nesophila</i>	25	50-150	36
Boobialla	<i>Myoporum insulare</i>	25	50-150	24-36
Olive	<i>Olea europaea</i>	35	>150	12-24
Scots pine	<i>Pinus sylvestris</i>	65	>150	24
Chinese pistachio	<i>Pistacia chinensis</i>	65	>150	24
Pittosporum	<i>Pittosporum</i> sp.	35	50-150	24
Peach	<i>Prunus</i> sp.	25	<50 years	36
Peruvian pepper tree	<i>Schinus molle</i>	50	50-150	36
Fan palm	<i>Washingtonia filifera</i>	65	50-150	36

the survey, due to the presence of a fence. These trees were therefore surveyed at a distance and are numbered 500 through 514.¹ A total of 342 trees were surveyed and mapped.

Potential for growth of each surveyed tree over the next 5 to 10 years was estimated based on tree health, the percentage of maximum expected height (Table 1) for the species currently achieved, the total potential remaining height gain to the maximum expected height for the species, and the distance to the nearest adjacent tree. Categorical values of 0 to 3 were assigned for each of these four parameters and then averaged across parameters in order to determine the relative growth potential. Then, based on the averaged value, height growth potential for the next 5 to 10 years was assigned to each surveyed tree in the following categories:

1. Dying – no further growth expected, likely to be dead or removed
2. None – not likely to grow significantly (i.e., less than 2 feet)
3. Low – Expected to grow between 2 and 5 feet
4. Medium – Expected to grow between 5 and 10 feet
5. High – Expected to grow more than 10 feet

¹ These trees were numbered starting at 500 to reflect that they were not surveyed to the same extent as trees 1 through 327, as dbh could not be measured. Numbers 328 through 499 were not used.

Growth potential assignments relied on the following assumptions:

1. All trees noted as dead or dying in Table 2 are expected to be dead or removed in the next 5 to 10 years.
2. All trees that were recorded as unhealthy, either due to beetle infestation, suppression, or other indicators, are not expected not grow significantly in the next 5 to 10 years (between 0 and 2 feet in height).
3. Trees that are healthy but are mature and have reached their maximum height are not expected to grow significantly in the next 5 to 10 years (between 0 and 2 feet in height).
4. Trees that have reached less than 50 percent of their maximum height are expected to grow more rapidly than those that have reached over 80 percent of their maximum height.
5. Trees that are located in close proximity to other trees are expected to grow less in height than trees which are isolated. Trees that are within 4 feet of another tree are not expected to grow more than 5 feet in height in the next 5 to 10 years.

H3 SURVEY RESULTS

The survey identified 342 trees located along the eastern and southern edges of the property which could serve as a visual screen for the new WPGS generation units. These trees are primarily landscaped ornamentals ranging in age and size from saplings to mature trees. Table 2 lists the tree species surveyed and provides notes about growth habits of individual species. Survey data were also estimated from some distance for 15 additional trees southwest of the eastern tanks and along the channel on the south edge of the power plant near the plant entrance. As previously mentioned, these trees, numbered 500 through 514 on Figure 4 were not accessible at the time of the survey but were evaluated visually from several feet away. The locations of these specimens were hand-recorded on aerial maps and later added to GIS maps. The location and species of each tree surveyed is shown on Figures 1 through 4. Each tree number shown on the figures corresponds to the data provided in Table 2, which includes species, typical maximum height for the species, current height, dbh, relative health, and an estimate of growth potential for the next 5 to 10 years.

The majority of the trees in the northeastern portion of the area surveyed are mature and healthy. The dominant species in this area are blackwood acacia (*Acacia melanoxylon*) and Peruvian pepper tree (*Schinus molle*).

Proceeding south, east of the tanks, mature blackwood acacias dominate the flats while *Callistemon* spp. and shrubs (e.g., oleander) grow in a row along the top of the eastern berm. These plants are mostly middle-aged to mature. East and directly across from each of the pathways between the tanks, there is an engineered break in the berm dominated by mature Scots pine (*Pinus sylvestris*) and crimson bottlebrush (*Callistemon citrinus*). Both species had been planted within these man-made areas. The Scots pines are diseased, suffering from the stress of wood-boring insect damage. Most of the crimson bottlebrushes in the swales have been heavily pruned and are less than 4 feet tall.²

² While included in this study, this species only grows to a maximum height of 15 feet and depending upon its growth form is often considered a tall shrub species.

Tree #	Tree Species	Stem(s) dbh (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
1	<i>Schinus molle</i>	14, 11, 11	25	50	high	healthy
2	<i>Schinus molle</i>	10, 9, 11, 16	27	50	medium	healthy
3	<i>Schinus molle</i>	14, 18, 13, 10	32	50	low	healthy
4	<i>Schinus molle</i>	10	15	50	high	healthy
5	<i>Schinus molle</i>	12	22	50	high	healthy
6	<i>Acacia melanoxylon</i>	7, 10, 16	26	50	low	healthy
7	<i>Acacia melanoxylon</i>	6	24	50	low	healthy
8	<i>Acacia melanoxylon</i>	6	11	50	medium	healthy
9	<i>Acacia melanoxylon</i>	11	28	50	low	healthy
10	<i>Acacia melanoxylon</i>	11	25	50	low	healthy
11	<i>Acacia melanoxylon</i>	8	11	50	medium	healthy
12	<i>Acacia melanoxylon</i>	8	25	50	low	healthy
13	<i>Acacia melanoxylon</i>	8	28	50	low	healthy
14	<i>Acacia melanoxylon</i>	6	19	50	medium	healthy
15	<i>Schinus molle</i>	15, 19	33	50	low	healthy
16	<i>Acacia melanoxylon</i>	13	35	50	none	healthy
17	<i>Pittosporum</i> sp.	6, 6, 6	18	35	medium	healthy
18	<i>Melaleuca linariifolia</i>	6, 7, 6, 8	15	35	low	healthy
19	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
20	<i>Acacia melanoxylon</i>	6	27	50	low	healthy
21	<i>Acacia melanoxylon</i>	17	34	50	low	healthy
22	<i>Acacia melanoxylon</i>	<6 (×3)	22	50	low	healthy
23	<i>Acacia melanoxylon</i>	7	24	50	low	healthy
24	<i>Eucalyptus camaldulensis</i>	8	22	>65	high	healthy
25	<i>Acacia melanoxylon</i>	11	20	50	medium	healthy
26	<i>Acacia melanoxylon</i>	6, <6 (×4)	18	50	medium	healthy
27	<i>Acacia melanoxylon</i>	6, <6	12	50	medium	healthy
28	<i>Eucalyptus camaldulensis</i>	7	28	>65	high	healthy
29	<i>Myoporum insulare</i>	<6 (×8)	10	25	high	healthy
30	<i>Pinus sylvestris</i>	14	18	65	none	beetle pitch
31	<i>Pinus sylvestris</i>	9	26	65	medium	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
32	<i>Pinus sylvestris</i>	8	15	65	none	beetle pitch
33	<i>Pinus sylvestris</i>	6	20	65	medium	no beetle
34	<i>Pinus sylvestris</i>	7	18	65	none	beetle pitch
35	<i>Eucalyptus camaldulensis</i>	17, 9	50	>65	medium	healthy
36	<i>Pinus sylvestris</i>	15	30	65	none	beetle pitch
37	<i>Pinus sylvestris</i>	14	27	65	none	beetle pitch
38	<i>Pinus sylvestris</i>	9	25	65	none	weeping but no beetle pitch
39	<i>Myoporum insulare</i>	<6, <6, 6	10	25	none	epicormic sprouts
40	<i>Melaleuca nesophila</i>	<6	10	25	medium	none
41	<i>Callistemon rigidus</i>	6	10	20	none	sparse canopy, alive
42	<i>Callistemon rigidus</i>	<6	10	20	medium	healthy
43	<i>Callistemon rigidus</i>	<6	<10	20	none	sprouts off of cut basal stump
44	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
45	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
46	<i>Myoporum insulare</i>	<6	10	25	medium	healthy
47	<i>Pinus sylvestris</i>	6, <6	15	65	none	beetle pitch
48	<i>Myoporum insulare</i>	<6	7	25	medium	healthy
49	<i>Eucalyptus camaldulensis</i>	19, 21	50	>65	none	not healthy
50	<i>Eucalyptus camaldulensis</i>	25	28	>65	high	healthy
51	<i>Acacia melanoxylon</i>	<6	<10	50	dying	leaves browning, dying
52	<i>Callistemon rigidus</i>	<6	10	20	medium	healthy
53	<i>Melaleuca nesophila</i>	<6	<10	25	medium	healthy
54	<i>Melaleuca nesophila</i>	<6, <6	10	25	medium	healthy
55	<i>Acacia melanoxylon</i>	6	10	50	high	healthy
56	<i>Pinus sylvestris</i>	17	30	65	none	beetle pitch
57	<i>Pinus sylvestris</i>	7	33	65	medium	no beetle
58	<i>Callistemon rigidus</i>	<6	15	20	low	healthy
59	<i>Callistemon citrinus</i>	<6	<10	15	none	shrub

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
60	<i>Pinus sylvestris</i>	13	36	65	medium	healthy
61	<i>Eucalyptus camaldulensis</i>	19, 12	58	>65	low	healthy
62	<i>Callistemon rigidus</i>	8	12	20	low	healthy
63	<i>Pinus sylvestris</i>	11	40	65	none	beetle pitch
64	<i>Pinus sylvestris</i>	11	43	65	none	beetle pitch
65	<i>Callistemon citrinus</i>	<1	<10	15	none	pruned/hacked
66	<i>Callistemon citrinus</i>	<1	<10	15	none	pruned/hacked
67	<i>Pinus sylvestris</i>	10	20	65	none	beetle pitch, wound on stem
68	<i>Pinus sylvestris</i>	8	15	65	none	fallen rootwad growing stem
69	<i>Myoporum insulare</i>	<6	10	25	medium	healthy
70	<i>Pinus sylvestris</i>	10	31	65	medium	healthy
71	<i>Pinus sylvestris</i>	12	33	65	medium	healthy
72	<i>Pinus sylvestris</i>	11	40	65	medium	healthy
73	<i>Eucalyptus camaldulensis</i>	19	43	>65	low	healthy
74	<i>Pinus sylvestris</i>	11	28	65	low	healthy
75	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
76	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
77	<i>Callistemon citrinus</i>	<1	<10	15	none	heavily pruned
78	<i>Callistemon citrinus</i>	<1	<10	15	none	heavily pruned
79	<i>Pinus sylvestris</i>	11	30	65	none	beetle pitch
80	<i>Pinus sylvestris</i>	7	32	65	medium	healthy
81	<i>Pinus sylvestris</i>	11	34	65	none	beetle pitch
82	<i>Pinus sylvestris</i>	9	28	65	none	beetle pitch
83	<i>Melaleuca nesophila</i>	<6, <6	10	25	medium	healthy
84	<i>Melaleuca nesophila</i>	<6, <6	10	25	medium	healthy
85	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
86	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
87	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
88	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
89	<i>Myoporum insulare</i>	<6	<10	25	medium	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
90	<i>Eucalyptus camaldulensis</i>	11, 10, 17	34	>65	high	healthy
91	<i>Acacia melanoxylon</i>	19, 14	20	50	high	healthy
92	<i>Acacia melanoxylon</i>	<6 (×3)	21	50	low	healthy
93	<i>Acacia melanoxylon</i>	12	20	50	medium	healthy
94	<i>Myoporum insulare</i>	<6 (×5)	10	25	high	healthy
95	<i>Myoporum insulare</i>	<6 (×2)	10	25	medium	healthy
96	<i>Callistemon rigidus</i>	<6	10	20	medium	none
97	<i>Callistemon rigidus</i>	<6	10	20	medium	healthy
98	<i>Callistemon rigidus</i>	6	10	20	medium	healthy
99	<i>Callistemon rigidus</i>	<6	10	20	medium	healthy
100	<i>Callistemon rigidus</i>	6	10	20	medium	healthy
101	<i>Callistemon rigidus</i>	<6 (×3)	10	20	medium	healthy
102	<i>Callistemon rigidus</i>	<6 (×2)	10	20	medium	healthy
103	<i>Callistemon rigidus</i>	<6 (×3)	10	20	medium	healthy
104	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
105	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
106	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
107	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
108	<i>Melaleuca nesophila</i>	<6	10	25	medium	healthy
109	<i>Pinus sylvestris</i>	15	33	65	low	healthy
110	<i>Eucalyptus camaldulensis</i>	21	58	>65	none	healthy
111	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
112	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
113	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
114	<i>Callistemon citrinus</i>	<6	<10	15	low	healthy
115	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
116	<i>Eucalyptus camaldulensis</i>	32	58	>65	low	healthy
117	<i>Acacia melanoxylon</i>	10, 7, 7	19	50	high	healthy
118	<i>Acacia melanoxylon</i>	8, 11	22	50	medium	healthy
119	<i>Melaleuca nesophila</i>	<6 (×10)	12	25	dying	dying branches/ foliage sparse

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
120	<i>Pinus sylvestris</i>	13	28	65	none	beetle pitch
121	<i>Pinus sylvestris</i>	8, <6	15	65	none	dead top snapped off, weeping
122	<i>Pinus sylvestris</i>	8	22	65	none	beetle pitch
123	<i>Pinus sylvestris</i>	8	22	65	high	healthy
124	<i>Myoporum insulare</i>	<6	<10	25	medium	healthy
125	<i>Acacia melanoxylon</i>	<6	<10	50	high	healthy
126	<i>Myoporum insulare</i>	6, <6 (x3)	10	25	medium	healthy
127	<i>Myoporum insulare</i>	<6	10	25	medium	healthy
128	<i>Callistemon rigidus</i>	<6 (x4)	<10	20	medium	healthy
129	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
130	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
131	<i>Pinus sylvestris</i>	9	27	65	none	beetle pitch
132	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
133	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
134	<i>Callistemon rigidus</i>	<6	<10	20	medium	healthy
135	<i>Melaleuca nesophila</i>	<6	<10	25	high	healthy
136	<i>Eucalyptus camaldulensis</i>	8, 18, 22	48	>65	medium	healthy
137	<i>Acacia melanoxylon</i>	15, 8, 11	28	50	medium	healthy
138	<i>Acacia melanoxylon</i>	6, <6	20	50	medium	healthy
139	<i>Acacia melanoxylon</i>	8	15	50	medium	healthy
140	<i>Acacia melanoxylon</i>	9, 8, <6 (x2)	28	50	low	healthy
141	<i>Acacia melanoxylon</i>	11	20	50	medium	healthy
142	<i>Melaleuca armillaris</i>	<6	<10	25	high	healthy
143	<i>Acacia melanoxylon</i>	<6 (x4)	15	50	medium	healthy
144	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
145	<i>Acacia melanoxylon</i>	<6 (x3)	15	50	medium	healthy
146	<i>Acacia melanoxylon</i>	<6 (x3)	20	50	medium	healthy
147	<i>Melaleuca armillaris</i>	<6 (x5)	<10	25	medium	healthy
148	<i>Acacia melanoxylon</i>	14, 10	28	50	low	healthy
149	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
150	<i>Acacia melanoxylon</i>	9	15	50	high	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
151	<i>Acacia melanoxylon</i>	<6	10	50	high	healthy
152	<i>Schinus molle</i>	13	24	50	low	healthy
153	<i>Schinus molle</i>	11	24	50	low	healthy
154	<i>Schinus molle</i>	18, 14	25	50	high	healthy
155	<i>Pinus sylvestris</i>	9	38	65	medium	healthy, no bark beetle
156	<i>Pinus sylvestris</i>	9	34	65	medium	healthy, no bark beetle
157	<i>Pinus sylvestris</i>	18	40	65	medium	healthy, no bark beetle
158	<i>Pinus sylvestris</i>	15	42	65	medium	healthy, no bark beetle
159	<i>Eucalyptus camaldulensis</i>	19	50	>65	medium	healthy, no bark beetle
160	<i>Pinus sylvestris</i>	19	43	65	medium	healthy, no bark beetle
161	<i>Pinus sylvestris</i>	12	28	65	high	healthy, no bark beetle
162	<i>Acacia melanoxylon</i>	<6	<10	50	dying	half of tree is dead, rest unhealthy
163	<i>Prunus sp.</i>	<6	10	25	high	healthy
164	<i>Melaleuca nesophila</i>	<6 (x3)	<10	25	medium	healthy
165	<i>Melaleuca nesophila</i>	<6 (x2)	<10	25	medium	healthy
166	<i>Acacia melanoxylon</i>	<6	<10	50	none	unhealthy, weak
167	<i>Melaleuca nesophila</i>	<6 (x3)	<10	25	medium	healthy
168	<i>Melaleuca nesophila</i>	<6 (x3)	<10	25	medium	healthy
169	<i>Melaleuca nesophila</i>	<6	<10	25	medium	healthy
170	<i>Melaleuca nesophila</i>	<6	<10	25	medium	healthy
171	<i>Melaleuca nesophila</i>	<6 (x3)	<10	25	medium	healthy
172	<i>Melaleuca nesophila</i>	<6 (x2)	<10	25	medium	healthy
173	<i>Melaleuca nesophila</i>	<6 (x4)	<10	25	medium	healthy
174	<i>Melaleuca nesophila</i>	<6 (x2)	<10	25	medium	healthy
175	<i>Melaleuca nesophila</i>	<6 (x2)	<10	25	low	healthy
176	<i>Pinus sylvestris</i>	12	28	65	low	healthy
177	<i>Pinus sylvestris</i>	10	15	65	high	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
178	<i>Pinus sylvestris</i>	12	46	65	low	healthy
179	<i>Pinus sylvestris</i>	14	48	65	low	healthy
180	<i>Pinus sylvestris</i>	15	52	65	low	healthy
181	<i>Acacia melanoxylon</i>	<6	15	50	high	healthy
182	<i>Schinus molle</i>	15, 22	38	50	medium	healthy
183	<i>Acacia melanoxylon</i>	14	28	50	medium	healthy
184	<i>Acacia melanoxylon</i>	<6	18	50	low	healthy
185	<i>Acacia melanoxylon</i>	<6	18	50	low	healthy
186	<i>Pinus sylvestris</i>	<6	10	65	medium	healthy
187	<i>Acacia melanoxylon</i>	10	26	50	low	healthy
188	<i>Acacia melanoxylon</i>	<6	<10	50	high	healthy
189	<i>Acacia melanoxylon</i>	<6	<10	50	medium	healthy
190	<i>Eucalyptus camaldulensis</i>	20, 25, 16	55	>65	low	healthy
191	<i>Olea europaea</i>	<6	10	35	medium	healthy
192	<i>Prunus sp.</i>	<6	12	25	medium	healthy
193	<i>Acacia melanoxylon</i>	8, 8	28	50	low	healthy
194	<i>Acacia melanoxylon</i>	6	15	50	high	healthy
195	<i>Acacia melanoxylon</i>	6, 6, <6	25	50	low	healthy
196	<i>Acacia melanoxylon</i>	7	26	50	low	healthy
197	<i>Prunus sp.</i>	<6 (×3)	10	25	low	healthy
198	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
199	<i>Acacia melanoxylon</i>	<6	15	50	medium	healthy
200	<i>Acacia melanoxylon</i>	7	26	50	low	healthy
201	<i>Acacia melanoxylon</i>	6	24	50	low	healthy
202	<i>Acacia melanoxylon</i>	<6 (×2)	20	50	low	healthy
203	<i>Acacia melanoxylon</i>	7	20	50	low	healthy
204	<i>Acacia melanoxylon</i>	8	25	50	low	healthy
205	<i>Acacia melanoxylon</i>	<6	25	50	low	healthy
206	<i>Acacia melanoxylon</i>	<6	24	50	low	healthy
207	<i>Acacia melanoxylon</i>	<6	24	50	low	healthy
208	<i>Acacia melanoxylon</i>	16	24	50	low	healthy
209	<i>Prunus sp.</i>	<6	15	25	low	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
210	<i>Acacia melanoxylon</i>	<6	24	50	low	healthy
211	<i>Schinus molle</i>	11	28	50	medium	healthy
212	<i>Acacia melanoxylon</i>	7, <6	24	50	low	healthy
213	<i>Acacia melanoxylon</i>	<6	24	50	low	healthy
214	<i>Prunus</i> sp.	<6	18	25	low	healthy
215	<i>Acacia melanoxylon</i>	8	25	50	medium	healthy
216	<i>Acacia melanoxylon</i>	<6 (×2)	20	50	high	healthy
217	<i>Acacia melanoxylon</i>	13	28	50	low	healthy
218	<i>Washingtonia filifera</i>	25	33	65	medium	healthy
219	<i>Acacia melanoxylon</i>	7	22	50	low	healthy
220	<i>Acacia melanoxylon</i>	<6	20	50	medium	healthy
221	<i>Acacia melanoxylon</i>	<6	20	50	medium	healthy
222	<i>Washingtonia filifera</i>	18	18	65	high	healthy
223	<i>Acacia melanoxylon</i>	<6	10	50	high	healthy
224	<i>Acacia melanoxylon</i>	7, 8, 10	22	50	medium	healthy
225	<i>Acacia melanoxylon</i>	<6	25	50	low	healthy
226	<i>Acacia melanoxylon</i>	9, 9, <6	26	50	low	healthy
227	<i>Acacia melanoxylon</i>	8, 7, <6	26	50	low	healthy
228	<i>Acacia melanoxylon</i>	<6, 11	32	50	low	healthy
229	<i>Acacia melanoxylon</i>	13	25	50	medium	healthy
230	<i>Acacia melanoxylon</i>	13	25	50	medium	healthy
231	<i>Washingtonia filifera</i>	30	45	65	medium	healthy
232	<i>Acacia melanoxylon</i>	<6 (×2)	15	50	high	healthy
233	<i>Acacia melanoxylon</i>	6, <6 (×3)	22	50	low	healthy
234	<i>Acacia melanoxylon</i>	14, 8	24	50	low	healthy
235	<i>Acacia melanoxylon</i>	<6 (×2), 7, 7	24	50	medium	healthy
236	<i>Washingtonia filifera</i>	18	26	65	low	healthy
237	<i>Cupressa macrocarpa</i>	16, 6, 6	27	80	low	healthy
238	<i>Eucalyptus camaldulensis</i>	11, 15, 23	50	>65	medium	healthy
239	<i>Myoporum insulare</i>	<6 (×6)	15	25	low	healthy
240	<i>Acacia melanoxylon</i>	<6, 7, 7, 8	25	50	medium	healthy
241	<i>Acacia melanoxylon</i>	17	25	50	medium	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
242	<i>Acacia melanoxylon</i>	7, 9, <6 (×4)	26	50	medium	healthy
243	<i>Eucalyptus camaldulensis</i>	16, 18, 13	50	>65	medium	healthy
244	<i>Acacia melanoxylon</i>	<6 (×7)	20	50	high	healthy
245	<i>Prunus sp.</i>	<6	10	25	high	healthy
246	<i>Cupressa macrocarpa</i>	<6, 7, 8, 9	20	80	high	healthy
247	<i>Cupressa macrocarpa</i>	<6, 9	24	80	high	healthy
248	<i>Myoporum insulare</i>	<6 (×7)	15	25	low	healthy
249	<i>Myoporum insulare</i>	6	10	25	medium	healthy
250	<i>Acacia melanoxylon</i>	12, 18	20	50	high	healthy
251	<i>Cupressa macrocarpa</i>	<6 (×8)	12	80	high	healthy
252	<i>Cupressa macrocarpa</i>	11, 6	22	80	high	healthy
253	<i>Acacia melanoxylon</i>	6	10	50	high	healthy
254	<i>Acacia melanoxylon</i>	6	10	50	high	healthy
255	<i>Acacia melanoxylon</i>	6, <6	10	50	medium	healthy
256	<i>Acacia melanoxylon</i>	6	10	50	none	galls on branches
257	<i>Acacia melanoxylon</i>	<6	10	50	Dying	few leaves, chloritic, branch galls
258	<i>Acacia melanoxylon</i>	<6	10	50	medium	healthy
259	<i>Pistacia chinensis</i>	<6 (×2)	20	65	medium	healthy
260	<i>Pistacia chinensis</i>	6	20	65	medium	healthy
261	<i>Acacia melanoxylon</i>	6, <6	25	50	dying	dying
262	<i>Pistacia chinensis</i>	<6 (×3)	25	65	medium	healthy
263	<i>Pistacia chinensis</i>	6, <6 (×3)	25	65	medium	healthy
264	<i>Acacia melanoxylon</i>	<6 (×2)	20	50	dying	galls on branches, dying
265	<i>Acacia melanoxylon</i>	<6	<10	50	none	few leaves, sick
266	<i>Acacia melanoxylon</i>	6, <6 (×2)	20	50	none	galls, still alive
267	<i>Acacia melanoxylon</i>	6, <6	20	50	none	galls, still alive
268	<i>Acacia melanoxylon</i>	<6 (×3)	20	50	dying	two dead stems, third dying
269	<i>Prunus sp.</i>	<6	20	25	none	healthy
270	<i>Acacia melanoxylon</i>	8, <6 (×2)	20	50	high	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
271	<i>Acacia melanoxylon</i>	6, 6	25	50	dying	one stem mostly dead
272	<i>Acacia melanoxylon</i>	9	28	50	none	galls, still alive
273	<i>Acacia melanoxylon</i>	10	30	50	none	galls, still alive
274	<i>Pistacia chinensis</i>	<6	10	65	medium	healthy
275	<i>Acacia melanoxylon</i>	7	20	50	dying	dying
276	<i>Acacia melanoxylon</i>	6	20	50	dying	dying
277	<i>Acacia melanoxylon</i>	<6	18	50	dying	dying
278	<i>Acacia melanoxylon</i>	6	25	50	dying	dying
279	<i>Acacia melanoxylon</i>	<6, 6, 6	30	50	dying	dying
280	<i>Acacia melanoxylon</i>	7, 6	30	50	dying	galls, one stem dying
281	<i>Acacia melanoxylon</i>	<6 (×3)	28	50	dying	galls, one stem dead, two stems failing
282	<i>Acacia melanoxylon</i>	6	30	50	none	galls
283	<i>Acacia melanoxylon</i>	7	25	50	low	healthy
284	<i>Pistacia chinensis</i>	<6 (×4)	20	65	medium	healthy
285	<i>Acacia melanoxylon</i>	6	30	50	none	galls, alive
286	<i>Acacia melanoxylon</i>	10	36	50	none	healthy
287	<i>Acacia melanoxylon</i>	<6	15	50	low	healthy
288	<i>Olea europaea</i>	<6 (×2)	25	35	low	healthy
289	<i>Pistacia chinensis</i>	6, 8	28	65	low	healthy
290	<i>Olea europaea</i>	<6 (×3)	35	35	none	healthy
291	<i>Olea europaea</i>	<6 (×2)	25	35	low	healthy
292	<i>Olea europaea</i>	<6	20	35	low	healthy
293	<i>Olea europaea</i>	<6 (×4)	25	35	low	healthy
294	<i>Olea europaea</i>	<6 (×2)	20	35	low	healthy
295	<i>Pistacia chinensis</i>	<6, 6	30	65	medium	healthy
296	<i>Prunus sp.</i>	<6	18	25	low	healthy
297	<i>Pistacia chinensis</i>	<6 (×6)	15	65	high	healthy
298	<i>Prunus sp.</i>	<6 (×2)	18	25	low	healthy
299	<i>Fraxinus latifolia</i>	8, <6 (×2)	25	65	medium	healthy
300	<i>Prunus sp.</i>	<6	10	25	medium	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
301	<i>Cupressa macrocarpa</i>	<6, 6, 6	40	80	medium	healthy
302	<i>Cupressa macrocarpa</i>	<6 (×2)	40	80	high	healthy
303	<i>Acacia melanoxylon</i>	<6 (×2), 6	35	50	none	healthy
304	<i>Cupressa macrocarpa</i>	<6	20	80	dying	dying, very suppressed
305	<i>Acacia melanoxylon</i>	7, 8, <6	35	50	none	healthy
306	<i>Acacia melanoxylon</i>	6, 7	40	50	none	healthy
307	<i>Acacia melanoxylon</i>	6	40	50	none	healthy
308	<i>Acacia melanoxylon</i>	<6 (×3)	37	50	none	healthy
309	<i>Acacia melanoxylon</i>	<6	10	50	none	suppressed
310	<i>Acacia melanoxylon</i>	<6	30	50	low	healthy
311	<i>Acacia melanoxylon</i>	<6	30	50	low	healthy
312	<i>Acacia melanoxylon</i>	<6, 6	35	50	none	healthy
313	<i>Schinus molle</i>	13, 9, 8, 11	30	50	medium	healthy
314	<i>Eucalyptus camaldulensis</i>	6	35	>65	medium	healthy
315	<i>Schinus molle</i>	13, 18, 15	30	50	medium	healthy
316	<i>Prunus sp.</i>	<6	20	25	none	healthy
317	<i>Acacia melanoxylon</i>	<6	15	50	low	healthy
318	<i>Schinus molle</i>	13, 9, 16	30	50	low	healthy
319	<i>Acacia melanoxylon</i>	<6	25	50	low	healthy
320	<i>Acacia melanoxylon</i>	<6, 7	30	50	low	healthy
321	<i>Acacia melanoxylon</i>	<6	20	50	medium	healthy
322	<i>Acacia melanoxylon</i>	13	35	50	none	healthy
323	<i>Acacia melanoxylon</i>	7, 6	20	50	medium	healthy
324	<i>Acacia melanoxylon</i>	6	20	50	none	stem galls, but still alive
325	<i>Ligustrum lucidum</i>	6, 9	33	50	low	healthy
326	<i>Schinus molle</i>	18	30	50	medium	healthy
327	<i>Pinus sylvestris</i>	10	25	65	none	beetle pitch
500	<i>Eucalyptus camaldulensis</i>	18-24	35-40	>65	high	healthy
501	<i>Schinus molle</i>	14-16	30	50	high	healthy
502	<i>Schinus molle</i>	10, 18	30	50	high	healthy

Tree #	Tree Species	Stem DBH (inches)	Height (feet)	Maximum Height (feet)	Growth Potential	Comments
503	<i>Schinus molle</i>	12, 25	30	50	high	healthy
504	<i>Acacia melanoxylon</i>	14	20	50	high	healthy
505	<i>Acacia melanoxylon</i>	<6	25	50	medium	healthy
506	<i>Acacia melanoxylon</i>	20	35-40	50	none	healthy
507	<i>Acacia melanoxylon</i>	8	20	50	high	healthy
508	<i>Acacia melanoxylon</i>	10, 8, 6	25	50	medium	healthy
509	<i>Acacia melanoxylon</i>	7	25	50	medium	healthy
510	<i>Prunus sp.</i>	<6	10	25	medium	healthy
510b	<i>Prunus sp.</i>	<6	10	25	medium	healthy
511	<i>Acacia melanoxylon</i>	14	10	50	high	healthy
512	<i>Acacia melanoxylon</i>	16	20	50	high	healthy
513	<i>Acacia melanoxylon</i>	6-14	15	50	high	healthy
514	<i>Melaleuca linariifolia</i>	<6 (x6)	20	35	medium	healthy

The area south of the eastern tanks contains the greatest diversity of species, but still consists primarily of acacias and Peruvian pepper trees. A majority of the acacias in the area are suffering from a stem gall. Several trees contained dead or dying branches while others had died and were still standing. Eight pepper tree saplings and one olive tree sapling are present in the area southeast of the tanks. A few basal sprouts of acacias occur in the northeastern corner. Most of these saplings are currently suppressed by taller trees and are likely to either die or not grow in the next 5 to 10 years unless the canopy cover is removed.

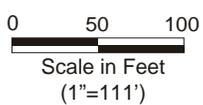
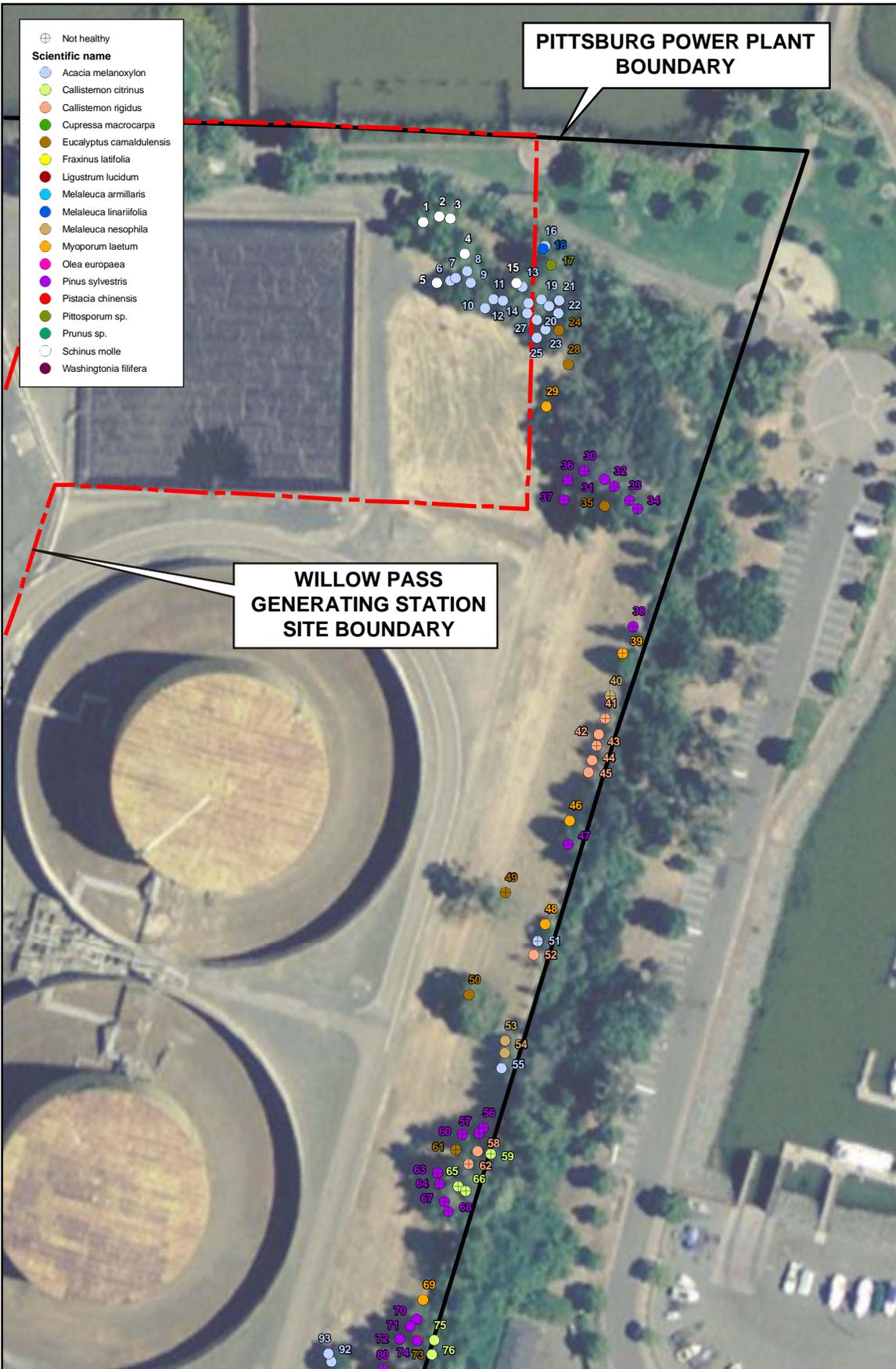
H4 FIVE- TO TEN-YEAR OUTLOOK

The majority of the trees surveyed are healthy and are expected to continue to grow over the next 5 to 10 years. Exceptions include the patch of acacias south of the southernmost tanks (Figures 1 and 2) and several of the Scots pine stands in the swales east of the tanks (Figures 1 and 2). The acacias are spaced closely to one another and appear to be suffering from a stem gall. Removal of some of these trees may contribute to the growth and survival of the remaining healthy trees over the next 10 years. The Scots pines, while suffering from insect infestation, appear to be at the early stages of infestation as their crowns remain full and healthy. These trees, however, were planted on steep slopes. Some have fallen over, which may continue to be a potential source of mortality in the coming years.

Most of the trees on site are mature specimens and are not expected to grow rapidly or substantially in the future. Some of the smaller trees, including the *Callistemon* and *Melaleuca* species, are expected to continue to grow but will not exceed 20 to 25 feet in height. The healthy acacias, eucalyptus, and cypress trees are expected to continue growing. The acacias are medium-sized trees and will likely not exceed 40 feet in height. The pepper trees may grow an additional 20 to 30 feet and the eucalyptus may grow an additional 30 to 40 feet in height. The Monterey cypress trees have the potential to grow an additional 40 to 65 feet in height.

H5 CONCLUSIONS

The PPP site has 342 trees along its eastern boundary and along the eastern portion of its southern boundary. The majority of these trees are mature and healthy. They provide visual screening of the existing PPP, and will continue to provide screening to the PPP and to the proposed WPGS during the next 5 to 10 years and beyond. While some of the 342 trees are either declining or are affected by diseases and pest damage and are not expected to increase in height, the majority of the trees are expected to continue to grow, providing overall between 5 and 15 additional vertical feet of screening over the next decade and beyond.

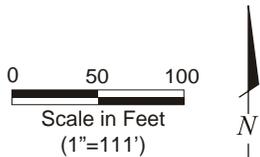


TREE SURVEY
 Willow Pass Generating Station
 December 2008
 28067343
 Mirant Willow Pass, LLC
 Pittsburg, California
URS
FIGURE 1



- ⊕ Not healthy
- Scientific name**
- Acacia melanoxylon
- Callistemon citrinus
- Callistemon rigidus
- Cupressa macrocarpa
- Eucalyptus camaldulensis
- Fraxinus latifolia
- Ligustrum lucidum
- Melaleuca armillaris
- Melaleuca linariifolia
- Melaleuca nesophila
- Myoporum laetum
- Olea europaea
- Pinus sylvestris
- Pistacia chinensis
- Pittosporum sp.
- Prunus sp.
- Schinus molle
- Washingtonia filifera

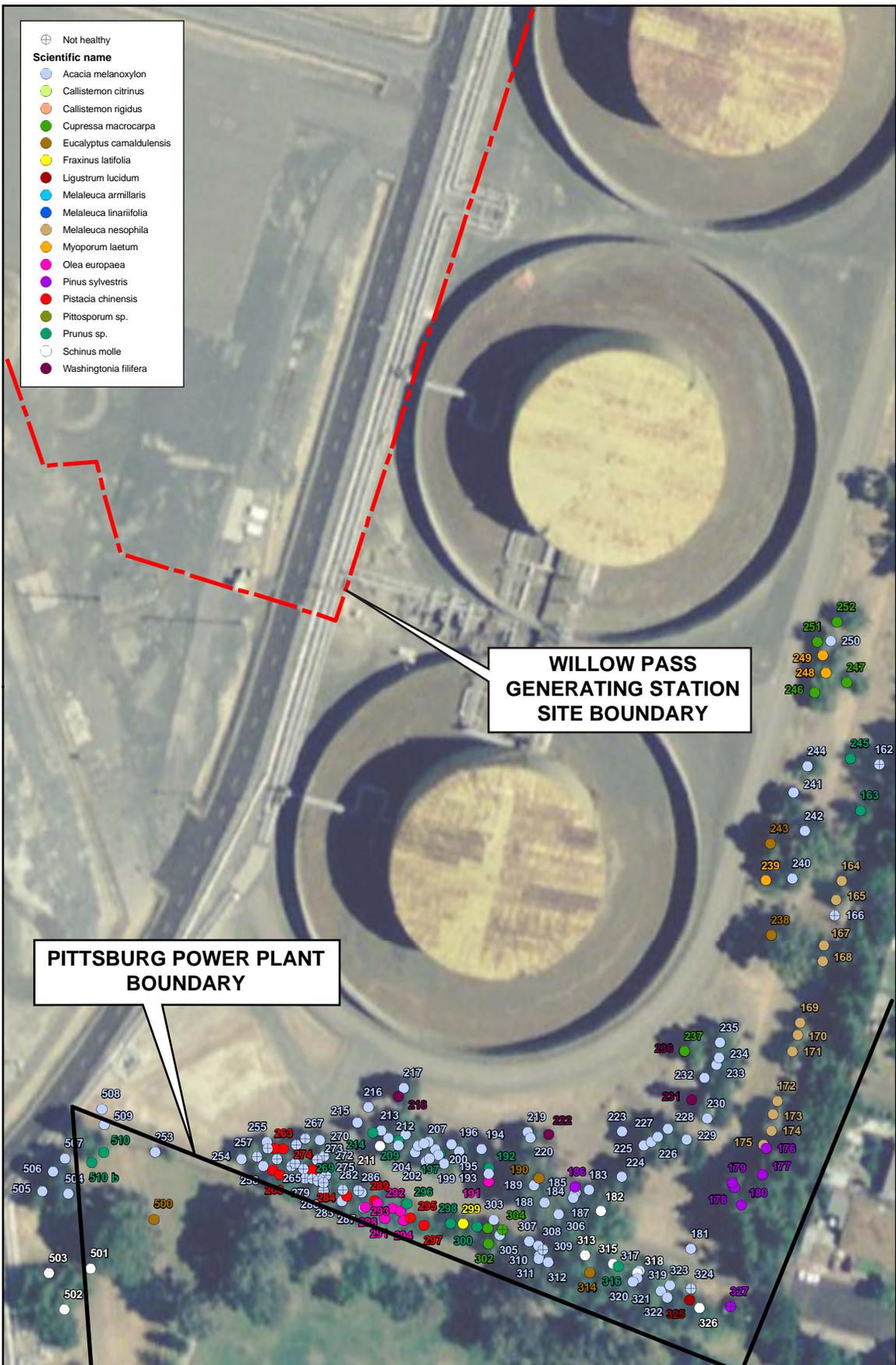
PITTSBURG POWER PLANT BOUNDARY



TREE SURVEY
 Willow Pass Generating Station
 Mirant Willow Pass, LLC
 28067343
 Pittsburg, California



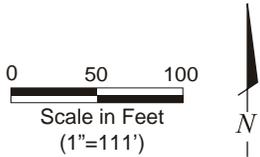
FIGURE 2



- ⊕ Not healthy
- Scientific name**
- Acacia melanoxydon
- Callistemon citrinus
- Callistemon rigidus
- Cupressa macrocarpa
- Eucalyptus camaldulensis
- Fraxinus latifolia
- Ligustrum lucidum
- Melaleuca armillaris
- Melaleuca linariifolia
- Melaleuca nesophila
- Myoporum laetum
- Olea europaea
- Pinus sylvestris
- Pistacia chinensis
- Pittosporum sp.
- Prunus sp.
- Schinus molle
- Washingtonia filifera

**WILLOW PASS
GENERATING STATION
SITE BOUNDARY**

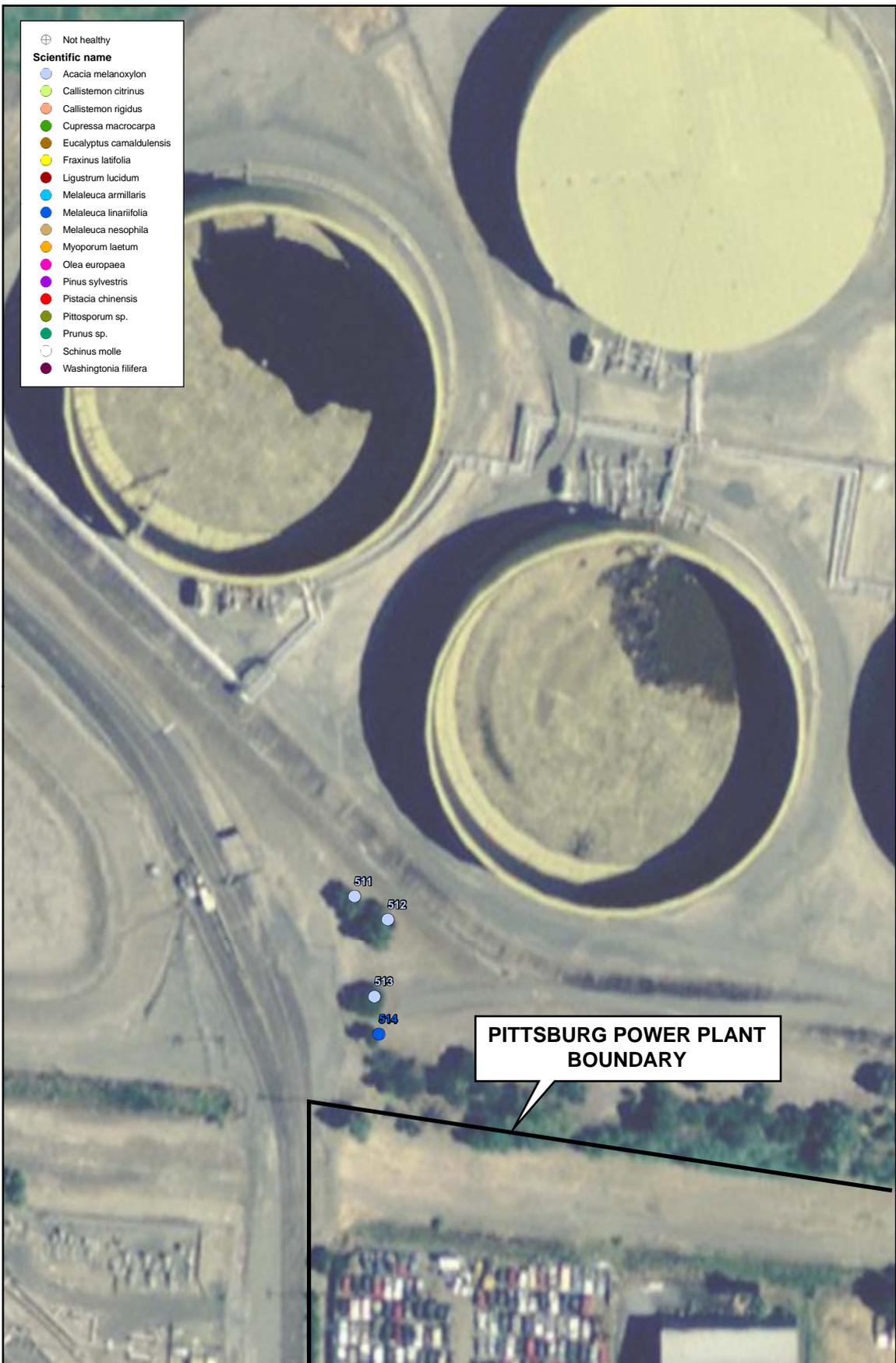
**PITTSBURG POWER PLANT
BOUNDARY**



TREE SURVEY
 Willow Pass Generating Station
 December 2008
 28067343
 Mirant Willow Pass, LLC
 Pittsburg, California



FIGURE 3



<p>0 50 100</p> <p>Scale in Feet (1"=111')</p> <p style="text-align: center;">N ↑</p>	<p style="text-align: right;">TREE SURVEY</p> <p style="text-align: right;">Willow Pass Generating Station Mirant Willow Pass, LLC Pittsburg, California</p> <p>December 2008 28067343</p> <p style="text-align: right;">FIGURE 4</p> <p style="text-align: center;">URS</p>
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