Appendix E

Summary of Public Scoping Comments

Appendix E: Summary of Public Scoping Comments

Introduction

The scoping process for the San Diego Bay NWR CCP is described in detail in Section 5.2 of the Final CCP/EIS. Comments related to the CCP were received via mail, email, and verbally at the initial scoping meetings. Additional comments were provided throughout the planning process, particularly during and immediately following the various public workshops held to address specific issues related to the CCP. A summary of the scoping comments is present below by topic.

Summary of Scoping Comments

ACQUISITION/BOUNDARY ISSUES

- Initiate the procedures necessary to take control (acquire/protect) of all lands and waters within the acquisitions boundaries for the South San Diego Bay Unit.
- Include all of the tidal mudflats in South San Diego Bay into the refuge boundaries, including the mudflats at Emory Cove, in the vicinity of the J Street Marina, and along Sweetwater Marsh.
- Extend the acquisition boundary for the South San Diego Bay Unit to the boundary for the Sweetwater Marsh Unit to create one continuous refuge.
- Incorporate into the Sweetwater Marsh Unit those portions of the D Street fill that are located to the north and west of the current refuge boundaries.
- Include all of Pond 20A within the South San Diego Bay Unit.

PUBLIC USE

General

- Emphasize the wildlife first perspective when considering the type and intensity of public uses to be permitted uses should not be permitted that would negatively impact endangered or other species.
- Limit public use because the refuge has been established for nesting birds.
- Link the public uses on the refuges to other public use areas, such as the Otay Valley River Park.
- Management goals should emphasize wildlife/habitat protection over public recreation uses.
- Promote ecotourism with minimal impacts to resources.
- Withhold final compatibility determination until population information is presented and analyzed.
- Include in the CCP, a thorough evaluation of all recreational activities presently allowed on the refuges and their impacts on native flora and fauna, especially threatened and endangered species.
- Maintain compatible wildlife-dependent recreational activities as a major component of the programs of the refuges.
- Strike a balance between wildlife and people, and manage the refuge as a place for people as well as wildlife, by accommodating passive, quiet human use.
- Manage public use to ensure that the refuge is maintained as a quiet place for waterfowl – the San Diego Bay is heavily used in almost all other areas, even kayaks in small numbers could have an impact on waterfowl.

- Don't restrict access to the refuges; rather take this as an opportunity to build support from future generations.

Hunting/Fishing
- Provide opportunities for dog trials and retrieval training.
- Prohibit dogs on the refuge.
- Provide opportunities for hunting.
- Prohibit consumptive use of wildlife on the refuge.
- Provide opportunities for fishing.
- There are enough fishing opportunities elsewhere in San Diego.
- Provide for youth-related hunting and fishing experiences.
- Prohibit hunting on the refuge.

Wildlife Observation
- Provide visual access to the bird colonies on the Salt Works through the use of video cameras.
- Provide access on the levees for viewing migratory birds within the Salt Works.
- Provide elevated bird blinds at the edges of the Salt Works to provide views of the migratory birds.
- Integrate bird viewing areas along the proposed Bayshore Bikeway.
- Consider the installation of elevated viewing platforms for wildlife viewing between 11th and 12th Streets next to the bike path and north of the Salt Works in the industrial area.
- Preserve the existing sound (ambient noise) characteristics of the salt ponds – avoid increasing human generated sounds in order to preserve evening silence, existing bird "chatter", and other nature sounds of this environment.

Wildlife Photography
- Provide bird blinds specifically for photographers.
- Provide for tourist photo opportunities.

Environmental Education
- Encourage more involvement with schools (K-6).
- Promote education by providing access for kids.
- Provide education/interpretive programs at the South Bay Unit and Paradise Marsh.
- Select places to education the public about these coastal resources that will not result in impacts in birds in the area.
- Educate the public about endangered species and how their survival is linked to human survival.
- Provide educational opportunities/birding brochures in Spanish.
- Working with partners, such as the City of National City and Paradise Creek Educational Park Inc., develop interpretive park elements in Paradise Marsh.
- Explain in the CCP how environmental education and interpretation will be provided and identify how these programs will relate to and support the purpose of the refuges.

Environmental Interpretation
- Provide duck feeding stations.
- Consider South Grand Caribe Island as a place for an interpretive stop on a kayak trail.
- Develop a comprehensive (e.g., biological resources, history, agriculture, culture, industry) and coordinated interpretive signage program around San Diego Bay.

- Create a multi-agency brochure that illustrates where all the interpretive signage around the bay are located.
- Establish a satellite interpretive facility near Bay View Elementary School.
- Provide interpretive areas/features through the refuge areas.

Boating
- Provide kayaking opportunities in the South Bay, including interpretive trails, resting areas and rentals.
- Provide a viewpoint for boaters, such as an island.
- Establish restrictions for boats and aircraft, including ultra-lights.

Trails
- Provide seasonal walking/jogging/birding trail around Ponds 10 and 11.
- Prohibit public access within the salt works.
- Limit public access to those areas in which such use would be compatible with wildlife resources, since inappropriate public access could result in impacts to threatened and endangered species, as well as all other nesting birds.
- Provide for a walking path adjacent to the Bayshore Bikeway.
- Allow bicycles to ride to Gunpowder Point on the Sweetwater Marsh Unit.
- Reduce motorized activity through Sweetwater Marsh.
- Consider the installation of boardwalks south of the J Street Marina over the existing mudflats and near the county park on the west side of the bay.
- Limit access to designated trails only and consider the use of physical barriers to ensure that trail users stay on the trail.
- Allow seasonal use of the dikes for walking.

Research
- Identify research opportunities that the refuge can support without adversely impacting biological resources or wildlife-dependent recreation.

WILDLIFE/HABITAT MANAGEMENT

General
- Develop management goals that are science-based and reflect the principles of conservation biology.
- Conduct a rigorous biological assessment and inventory of all flora and fauna inhabiting the refuge.
- Prior to planning, complete a thorough discussion and investigation of the biological integrity, diversity, and environmental health of the refuge areas.
- Follow the standardized sequence for refuge planning suggested in "Science-Based Stewardship: Recommendations for Implementing the National Wildlife Refuge System Improvement Act" (biological inventory ⇒ identification of plan goals ⇒ identification of threats ⇒ choice of focal species ⇒ CCP ⇒ monitoring and implementation ⇒ plan amendment [according to monitoring results]).
- Protect and, where appropriate, enhance wildlife habitat.
- Prepare monitoring and management procedures, define species habitat and monitoring protocols consistent with the MSCP protocols; conduct data management and reporting to allow integration with other MSCP preserve areas.
- Identify potential stressors of the lower Otay River and Sweetwater River systems.
- Ensure that conservation efforts/management do not degrade existing suitable habitat.
- Avoid developing a CCP that is a "mitigation dump."

- Reintroduce extirpated species.
- Incorporate adaptive management into the CCP through management goals, objectives, and strategies.
- Create corridors to connect different areas of the refuge.
- Avoid Habitat Evaluation Process (HEP) analysis.
- Preserve/enhance brackish marsh/freshwater habitat interface.
- Develop and maintain a database of pertinent scientific information regarding habitats and wildlife.
- Discuss in the CCP how anticipated trends in human population density and recreational use and other significant trends or anticipated problems will affect the distribution and abundance of native plants and animals on the refuges.

Predator Control

- Provide aggressive predator control for the protection of threatened and endangered species and other nesting species.
- Eliminate domestic and feral cats from the refuge year round.
- Make the dikes at the salt works predator proof.
- Use effective, long-term management strategies for protecting threatened and endangered species that are both humane and socially acceptable.
- Include a thorough discussion of predator control in the CCP.
- Incorporate into the predator control discussion, recent scientific research regarding non-lethal predator management methods for protection of threatened and endangered species, specifically with regard to predator exclusion techniques.

Consideration of Specific Organisms

- Consider the effects of restoration proposal on all species, not just endangered species (i.e. shorebirds versus least tern).
- Maintain/enhance existing habitat values for all currently occurring native species (shorebirds, nesting habitat for terns and shorebirds).
- Restore waterfowl habitat to original conditions, provide habitat for brants and widgeons.
- Create salt marsh that provides functional habitat for Belding's savannah sparrows, clapper rails, etc.
- Include specific management strategies for sea turtles.
- Consider insects, including wandering skipper, salt marsh skipper, globos dune beetle, tiger beetle, and lutica sand spiders, in protection, enhancement, and restoration planning.
- Study invertebrate populations in all habitats, terrestrial and aquatic.
- Restore the population of silvery legless lizards in the dunes.
- Pursue rare plant restoration and enhancement for species such as *Dudleya variegata* and *Lotus nuttlaliauus*.
- Establish as the primary management goal actions that benefit wintering and breeding birds.
- Optimize habitat conditions during the winter as well as during breeding season.
- Maximize nesting sites for terns, skimmers, and plovers.
- Manage the refuge primarily for the protection of migratory birds, breeding, and wintering birds.

Salt Ponds

- Consider the existing benefits of the salt works for shorebird use.
- Preserve brine shrimp, brine fly, hypersaline habitat to provide food source.
- Restore marsh habitat in the salt ponds without destroying the hypersaline habitat.

- Maintain the current salt works to preserve the current hypersaline environment.
- Restore the habitat in the salt ponds.
- Develop an understanding of the salt works ecosystem and its benefit before implementing changes.
- Explore if and how brine shrimp could be maintained in the salt ponds without making salt.
- Understand the different target areas of habitat enhancement/restoration will have different impacts on the integrity of salt production capacity (the more dilute the unit, the less effect on the system).
- Phase any changes in the salt operation to avoid impacts to existing habitat quality – don't disrupt the biogeochemistry of the system.
- Investigate various sizes of salt works operations that would be consistent with management objectives.
- Maintain the dikes within the salt ponds whether or not the salt making operation is continued.
- Breach the dikes within the salt ponds to create islands, if the salt making operations are discontinued.
- Consider creating nesting islands in the salt ponds.
- Consider Pond 10A as important biological habitat for herons and egrets.

Uplands

- Preserve upland transition areas and upland habitat around the Bay for sensitive and candidate species such as Loggerhead Shrike, Burrowing Owl, Northern Harrier, Horned Lark, and jack rabbit.

RESTORATION

Sweetwater Marsh Unit

- Restore Paradise Marsh, including reworking unsuccessful or incomplete restoration projects.
- Expand and reconnect the former 5.6 acres of marsh north of F Street to the F&G Street Marsh. Remove J Street in this area.
- Restore and improve tidal action in the F&G Street Marsh.

South San Diego Bay Unit

- Restore the degraded portions of the Otay River, while protecting existing important shorebird foraging areas.
- Integrate the restoration of Nestor Creek into the Otay River restoration proposals
- Restore coastal sage scrub on Egger-Ghio.
- Re-establish corridors between the Otay River Valley and the Bay for upland birds.
- Restore degraded salt ponds.
- Determine the most appropriate hydrologic restoration objectives for Egger-Ghio, and then develop a conceptual habitat restoration plan that is consistent with these objectives.
- Seek to correct problems at the Chula Vista Wildlife Reserve.
- Evaluate the extent of restoration, protection, and enhancement of habitats that is needed to sustain healthy populations of native plants and animals on the refuge.

MANAGEMENT OF INVASIVE SPECIES

- Eliminate/control non-native, invasive plants.
- Control/eradicate populations of Argentine ants on the refuge.
- Develop strategies for preventing new invasive species from becoming established on the refuges.

- Identify the current invasive species problems on the refuges and identify appropriate management responses.

HYDROLOGY/WATER QUALITY

- Identify methods for improving the quality of the runoff/storm water that flows from Nestor Creek and the Otay River, while also improving wetlands.
- Conduct a hydrologic study of Nestor Creek to determine if there is a connection between South Bay and the Tijuana floodplain.
- Evaluate the geomorphology of the lower Otay River, including its tributary canyons, to determine which wetland communities can be supported in the area.
- Address measures needed to maintain or restore water quality.

OPERATIONS

General Issues

- Develop a management overlay for the north end of the Otay River to give the Service some management authority.
- Monitor speeds in the bay and strictly enforce the 5 mph speed limit.
- Ensure adequate staff, training, and equipment for the refuge.
- Establish a long-term, extensive monitoring/research program to evaluate changes on the refuge.
- Monitor and record public access effects on wildlife.
- Secure the perimeter of the Sweetwater Marsh Unit to minimize unauthorized public access, particularly at the Sweetwater Channel and Paradise Creek intersection.

PROCDURAL ISSUES

- Conduct bilingual meetings and provide bilingual handouts/meeting notices.
- Work closely with the environmental community.
- Involve a group of stakeholders in the planning process.
- Allow Audubon to participate on the core team.
- Conduct single-issue public workshops.
- Make the vision statement and goals for the refuges available for public review and comment during the scoping and well before the preparation of the CCP and NEPA document.
- Take care to ensure that compliance with both NEPA and the Refuge Act are accomplished in the combined draft CCP/environmental document.
- Ensure that the California Department of Fish and Game is given the opportunity to participate in the process.
- Establish mechanisms to provide for thorough and responsive feedback to public comments made during the planning process.

PLANNING

- Allow for green space/park on the south end of Pond 20A and Egger-Ghio.
- Consider the inclusion of an oil spill mitigation plan in the CCP.
- Provide graphics in the CCP that demonstrate how the coastal areas are connected to the inland areas.
- Keep the planning process short and begin implementation immediately upon CCP approval.
- Consider the regional planning resource conservation and management objectives for the lower Otay River and Sweetwater River when developing the CCP.
- Address the relationship of the CCP to other existing landscape-level planning efforts.

- Establish and clearly state priorities for the activities proposed in the plan.

ADJACENT LAND USES

- Identify opportunities to connect commercial interests to the refuge.
- Work to achieve a good transition between Refuge property and any future commercial development that occurs on the south end of Pond 20A.
- Limit development between the two portions of Sweetwater Marsh and the adjacent bay front.
- Coordinate with Chula Vista planning regarding development adjacent to Sweetwater Marsh.

PARTNERSHIPS

- Identify specific partnership opportunities for funding projects or creating volunteer projects.

STEWARDSHIP PROJECT ISSUES

- Protect the snowy plover nesting areas on the site.
- Identify mitigation for the Navy on the Stewardship Project area – then the Stewardship Project could be replaced with a Refuge Overlay.
- Restore vernal pool habitat on the site.
- Remove *Carpobrotas edulis* at the site before it takes over everything on the dunes and other uplands.
- Survey for fairy shrimp in the existing vernal pools.

BAYSHORE BIKEWAY

- Provide screening along the bikeway in locations where shorebirds using the salt pond areas could be flushed.
- Select the least destructive route for the bikeway.
- Reroute the bike path from the tracks to the berm located on the south side of the tracks to allow more opportunities for river restoration.
- If Pond 20A is developed, aligned the bike path within the refuge/development interface.
- Upgrade the existing bike path.
- Complete the Bayshore Bikeway from E Street north to 24th Street.

MISCELLANEOUS QUESTIONS

- What is the timing for beginning work on the Stewardship Project?
- Why is Pond 20A excluded from the Refuge boundary, since it is an integral part of the system?
- Is the western refuge boundary provided on the maps correct? Why are the channels leading to the Coronado Cays not shown on the maps? What is their status with regards to the Refuge? Does the FWS have jurisdiction over them? Was this negotiated before the refuge was established?
- Who should someone call to report unauthorized activity on the refuge?
- Who has jurisdiction on the refuge (land/water)?
- If the South Bay Power Plant goes off line, what constraints would be placed on restoration due to the presence of sea turtles in the area?
- What is the biological status of pond 20A?
- Is the Comprehensive Conservation Plan a regulatory document for a local jurisdiction?
- What is the full range of alternatives that may be considered?

- The recognition of edge effects typically has what response from your agency, internal or external redress?
- Does a Comprehensive Conservation Plan include recommendations for land use changes or development standard modifications on properties adjacent, upstream, or near a refuge?
- Will hunting be considered as a possible public use on the refuge?
- Will there be any consideration of proposing additional boating restrictions on the Bay?

Appendix F

Description of the Salt Works Operation

Appendix F: Description of the Salt Works Operation

Brief History

The first formal reference to a commercial solar salt operation in south San Diego Bay is that of the La Punta Salt Works, which according to historic records began salt production in 1871 (*Gustafson and Gregory 2001*). Salt production in the south bay may however have begun prior to that time, based on one record from the San Diego Division of Natural Resources that cited 300 tons of salt production in San Diego Bay in 1870. The exact location of the La Punta Salt Works has not been verified, but is believed to have been located to the southwest of the current salt plant on Bay Boulevard. This facility appears to have been in operation until about 1901. In 1902, the Western Salt Company established a solar salt operation about a quarter of mile northeast of the La Punta Salt Works (*Gustafson and Gregory 2001*) within a portion of the present day salt works. By 1911, this operation had expanded into the south end of the bay. Additional changes to the configuration of the ponds have occurred since that time. The current operation encompasses approximately 1,035 acres and incorporates much of the southern end of San Diego Bay (Figure F-1). With the exception of brief closure in 1916 when flood waters severely damaged the salt plant and several ponds, salt has been produced continuously at this site since 1902.

Current Operation

South Bay Salt Works is the current operator of this facility, which produces salt through a process of solar evaporation. The salt works consists of a series of diked ponds (Figure F-2) that are designed to facilitate the concentration and ultimate precipitation of salts from bay water. Once seawater is taken from the bay, it is moved between the ponds through pumping and gravity flow. Approximately 60,000 to 80,000 tons of common salt (sodium chloride) are produced each year at this facility. This salt is sold commercially and used for water softeners, nitrate removal, ion exchange, pickling, deicing, as a dying additive, brine for petroleum products, and in the tuna industry as a means of controlling brine temperatures. Another salt produced as a byproduct of solar salt production is magnesium chloride, which is purchased by several industrial users in the area.

The evaporation ponds that form this solar salt operation can be divided into four categories based on specific gravity, which is defined as the ratio of the mass of a sample of seawater to the mass of an equal volume of pure water (*Stadtlander and Konecny 1994*). The four categories of ponds include the primary system, secondary system, crystallizer system, and the heavy brine or bittern ponds (refer to Figure F-2). Throughout the solar salt production industry, salinities in salt ponds are measured using a hydrometer scale, which describes salinity in degrees Baume (°Be) rather than specific gravity. A more common way of describing salinity would be in terms of total dissolved solids or parts per thousand (ppt). The conversion from °Be to total dissolved solids (TDS) or ppt is: TDS = (13 x °Be) – 21 (*Siegel and Bachand 2002*). In terms of TDS, the average salinity value for seawater is 35 ppt (*Siegel and Bachand 2002*). In San Diego Bay, salinity levels can be quite variable, particularly at the south end of the bay. Mean salinity within the south bay between July 1994 and April 1999 ranged from 31.6 ppt in April 1998 to 38.6 ppt in October 1996 (*Allen 1999*).

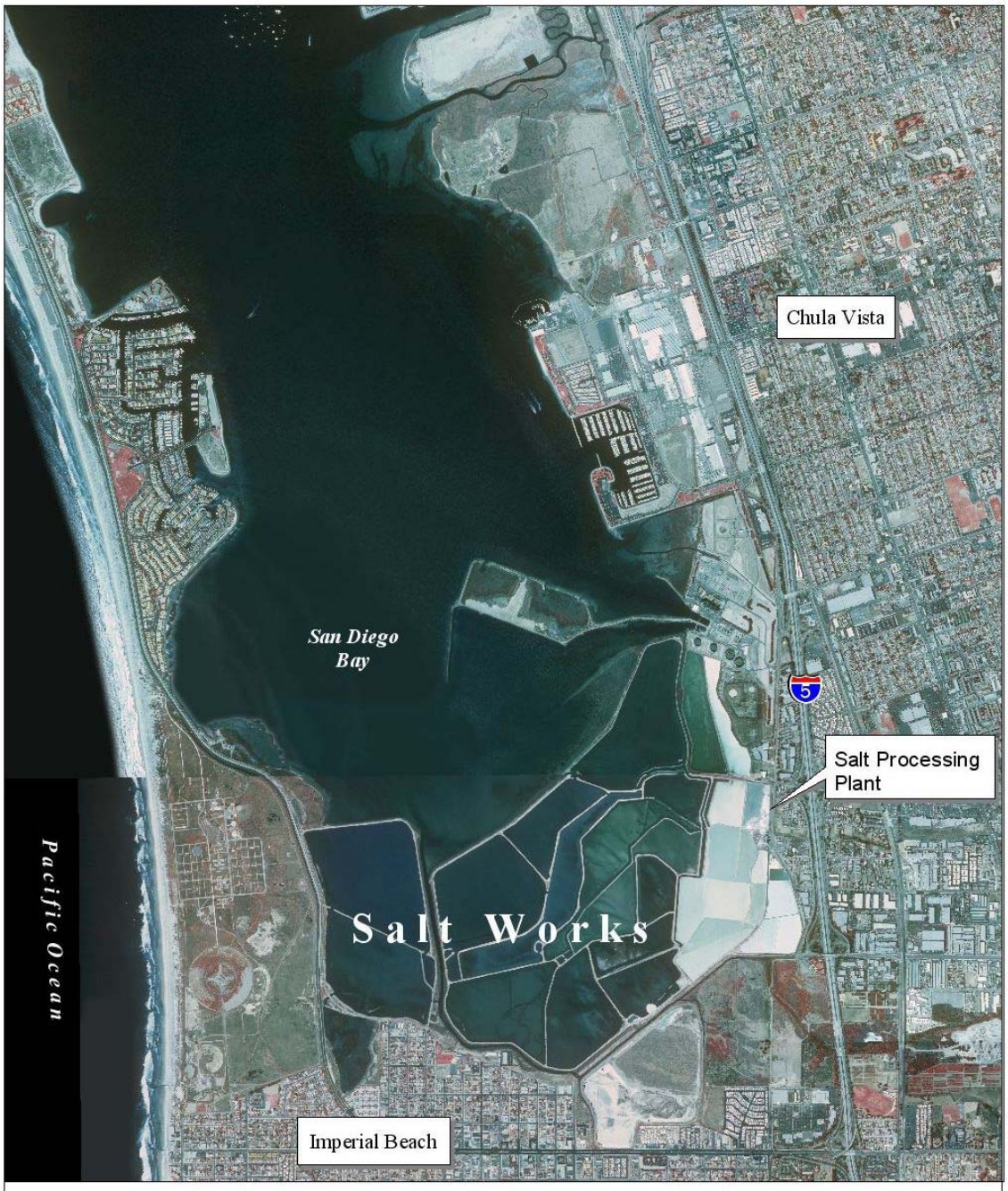

Figure F-1
Location of the Salt Works in San Diego Bay

N

0 0.25 0.5 Miles

Source: USFWS, Local Agency Partnership 2000 (2 ft imagery)

Carlsbad Field Office - 2003
/stem/stacey/ssdbay/fig_4-03/figures.apr

Figure F-2 South Bay Salt Works

To produce salt within the salt pond system, bay water is introduced into the primary pond system, which includes Ponds 10A and 10 through 15, through a tide gate located between the Otay River and Pond 10. This gate is pressure-regulated opening and allowing intake of water when the tidal level in the river is higher than the pond level. As the tidal level in the river lowers, the water pressure on the pond side closes the gate. As the water moves through this primary system, it is transported from Pond 11 to Pond 12 via a 30-inch siphon pipe that extends under the Otay River. The water is moved through the primary pond system via gravity flow as the appropriate salinity levels are reached in each pond. By the time the incoming seawater has reached the end of the primary system, the salinity has increased from 3.5 °Be to between 7 and 10 °Be or 70 to 109 ppt (*Western Salt Company 1997*). Once in the system, the water in the ponds is often referred to as brine. The depth of the primary ponds varies due to topographic variation within each pond, as well as due to seasonal variations in volume of water present in each pond. Although the average depth in these ponds is approximately three feet, the water level in Pond 10A can be significantly lower and during some parts of the year, the bottom of the pond may be exposed. During the intake of bay water into the system, a variety of fish and crustacean species enter the primary system, where they are able to tolerate the slightly increased salinities of bay water within the initial ponds of the primary system.

As needed, the brine is lifted by pump to the secondary system (Ponds 20 through 27), which consists of a series of smaller ponds. As the brine moves through the system, the salinities increase from 7 °Be to 19.5 °Be (70 to 232 ppt). Pond depths range from two to five feet at center. At about 12.9 °Be (147 ppt) gypsum, a crystal formed from the chemical precipitation of calcium and sulfate to form calcium sulfate, begins to precipitate from the water column forming a gypsum crust on the bottom of the ponds (*Siegel and Bachand 2002*). While attempting to survey the bottom elevations of these ponds, Ducks Unlimited engineers discovered that the gypsum crust in these ponds is highly irregular, with formations reminiscent of those gypsum formations found in Mono Lake.

At the end of the secondary system are the pickling ponds (Ponds 28, 29 and 30), which have salinities that range from between 15 °Be and 25.5 °Be (174 to 310 ppt). These ponds are used to distribute the concentrated brine into the crystallizer ponds. It is also in this part of the system that most of the remaining gypsum precipitation occurs. At about 25.5 °Be (310 ppt) the brine is saturated with sodium chloride and bittern salts (more soluble salts and ions consisting primarily of chloride, magnesium, sulfate, potassium, and bromide) and is ready to be introduced to the crystallizer system.

Precipitation of sodium chloride occurs within the crystallizer ponds (Ponds 40 through 48 and 50 through 52), which have salinities ranging from 25.5 to just under 29 °Be (310 to 356 ppt). (It should be noted that although Ponds 40 and 50 through 54 are not located within the refuge boundary, these areas are currently leased by the salt works operator for use in the existing solar salt operation.) Once the salt has precipitated out, the pond is drained and the salt is removed from the crystallizer ponds with heavy equipment such as front-end loaders.

Brine is eliminated from the crystallizer ponds before it reaches 29 °Be because brine of less than 29 °Be and brine of 29 °Be or greater do not mix. This situation can result in uneven crystal development. The brine discharged from the crystallizer ponds is referred to as heavy brine or bittern, which has a salinity of 29 to 30 °Be (356 to 369 ppt). Bittern is comprised of sodium chloride, magnesium sulfate and magnesium chloride. Sodium chloride and magnesium sulfate continue to be precipitated out in this part of the system, leaving magnesium chloride in a liquid state that is sold to local industry. The salts that precipitate out during this process are harvested

and deposited into an unused production pond before being redistributed throughout the system (*Western Salt Company 1997*).

Once the salt is removed from the crystallizer ponds, it is transported to the washer complex where it is washed and rinsed. It is then moved to a stockpile for drying and then processed for sale in bags or shipped in bulk as needed to commercial and industrial users.

References Cited

Allen, L.G. 1999. Fisheries Inventory and Utilization of San Diego Bay, San Diego California. (Final Report – Sampling Periods July 1994 – April 1999).

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Appendix G

Federal and State Ambient Air Quality Standards

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)[8]	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	—		0.08 ppm (157 µg/m^3)[8]		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		—		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		—	—	—
Lead[9]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		**No Federal Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

See footnotes on next page …

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calender year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the EPA.

8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18,1997. Contact U.S. EPA for further clarification and current federal policies.

9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Appendix H

Air Quality Calculations

Jones & Stokes

September 30, 2004

Ms. Victoria Touchstone
U.S. Fish and Wildlife Refuge Complex
6010 Hidden Valley Road
Carlsbad, CA 92009

RE: Air Emission Estimates for the South Bay Salt Works (Requisition 1168040039)

Dear Ms. Touchstone:

As you requested, Jones & Stokes has generated emission estimates for two restoration alternatives (14 scenarios) described in the Sweetwater Marsh and South San Diego Bay Units of the San Diego Bay National Wildlife Refuge draft Comprehensive Conservation Plan and Environmental Impact Statement.

The emission estimates were generated to determine whether either of the project's alternatives would generate construction-related emissions that exceed the federal conformity thresholds for criteria pollutants, specifically reactive organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NOx), or particulate matter less than 10 microns in diameter (PM10). At this time, a conformity analysis is not required for PM2.5.

The emission estimates were based on information provided for each restoration alternative, which included project schedule, soil import/export estimates (cubic yards of material), estimated truck trips needed to haul material, and estimates of the type and numbers of construction equipment that would be used for individual project phases. This information was to generate estimates of exhaust emissions and fugitive dust (PM10) generation. Exhaust emissions included on-road vehicles; such as trucks used to haul material on- and off-site, vendor trips, and worker commute trips. Exhaust emissions also included off-road construction equipment emissions.

The California Air Resources Board's (ARB) EMFAC2002 model was used to generate estimates of on-road vehicle emissions. Off-road emissions were based on ARB's off-road construction model. A modified version of the road construction emissions model was used to generate estimates of fugitive dust emissions and worker commute trips.

The emission estimates generated for each scenario are summarized in the following table. They show that each of the alternatives would generate emissions substantially below the federal

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conformity thresholds applicable within the San Diego Air Basin. Consequently, a conformity determination would not be required for this project.

	TONS PER YEAR			
Options	ROG	CO	NOx	PM10
Otay Option 1 only	1	9	11	4
Otay Option 1 and Salt Works Option 1	3	23	27	10
Otay Option 1 and Salt Works Option 2	3	25	28	8
Otay Option 2 only	2	16	16	4
Otay Option 2 and Salt Works Option 1	4	29	32	9
Otay Option 2 and Salt Works Option 2	4	30	32	9
Salt Works Option 1 only	2	14	15	5
Salt Works Option 2 only	2	15	16	6
Restored Salt Ponds	1	8	11	5
Restored Salt Ponds + Otay Restoration Option 1	3	18	22	10
Restored Salt Ponds + Otay Restoration Option 2	3	24	27	9
Restored Salt Ponds (Breach)	2	11	13	5
Restored Salt Ponds (Breach) + Otay Restoration Option 1	3	21	25	10
Restored Salt Ponds (Breach) + Otay Restoration Option 2	4	27	30	9
Conformity Threshold (tons/year)	100	100	100	100

Please let me know if you have any questions or concerns regarding these emission estimates.

Sincerely,

Tim Rimpo
Air Quality Project Director