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Chief Executive Officer and General Manager

May 19, 2009

The Honorable City Council
Office of the City Clerk
Room 395, City Hall
Mail Stop 160

Attention: Councilmember Bernard C. Parks
Chairperson, Budget and Finance Committee

Honorable Members:

Subject: Report Back on Owens Lake Dust Mitigation Program

On May 1, 2009, the Los Angeles Department of Water and Power (LADWP) presented its preliminary Fiscal Year 2009-10 budget to the City Council's Budget and Finance Committee (Committee). During the discussion, LADWP was asked to report back to the Committee with the status of the Owens Lake Dust Mitigation Program. The requested information is enclosed for your information.

If you have any questions or if further information is required, please call me at (213) 367-1338, or have your staff contact Ms. Winifred J. Yancy, Manager, Government and Neighborhood Relations, at (213) 367-0025.

Sincerely,

H. David Nahai
Chief Executive Officer
and General Manager

WJY:dks
Enclosure

c/enc: Honorable Wendy Greuel, Vice-Chair, Budget and Finance Committee
Honorable Jose Huizar, Member, Budget and Finance Committee
Honorable Bill Rosendahl, Member, Budget and Finance Committee
Honorable Greig Smith, Member, Budget and Finance Committee
Mr. Ray P. Ciranna, Interim City Administrative Officer
Mr. Ben Ceja, Director of Finance and Performance Management, Mayor's Office
Ms. Winifred J. Yancy

Water and Power Conservation ... a way of life

OWENS LAKE DUST MITIGATION PROGRAM STATUS REPORT

May 11, 2009

BACKGROUND

In the early 1900's Owens Lake was a shallow terminus saline lake encompassing approximately 110 square miles. Due to agricultural activities and diversion of water from the Lower Owens River via the Los Angeles Aqueduct, Owens Lake began to dry up becoming a highly emissive salt playa resulting in the worst particulate matter air pollution (PM10) in the nation. All that remained of Owens Lake prior to construction of mitigation measures was a brine pool that comprised approximately 31 square miles. In 1983, Health and Safety Code Section 42316 was enacted, allowing the Great Basin Unified Air Pollution Control District (District) to order the City of Los Angeles (City) to "undertake reasonable measures" to mitigate the air quality impacts associated with its water gathering activities in a manner that "shall not affect the right of the city to produce, divert, store, or convey water". In 1987, the Environmental Protection Agency (EPA) classified the Owens Valley Planning Area (OVPA) as an area not meeting the National Ambient Air Quality Standards for PM10. In 1993, the OVPA was classified as a serious non-attainment area under the federal Clean Air Act.






Owens Lake dust storm prior to mitigation efforts

Owens Lake Dust Mitigation Program Regulatory Requirements and Development

In 1998, the Los Angeles Department of Water and Power Board of Water and Power Commissioners, the City Council, and the Mayor entered into a memorandum of agreement (MOA) with the District wherein the City accepted responsibility for reducing dust emissions from the lake bed to bring the OVPA into compliance with the federal Clean Air Act ambient air quality standards for PM10. The District adopted the 1998 State Implementation Plan (SIP) which required LADWP to construct 16.5 square miles of dust control measures (DCM) on Owens Lake by the end of 2003 thus launching the Owens Lake Dust Mitigation Program (OLDMP).

By April 2003, the Los Angeles Department of Water and Power (LADWP) had completed construction of almost 19.4 square miles of DCMs on Owens Lake. The District adopted the 2003 SIP requiring 29.8 square miles of DCMs on the lake bed by the end of 2006. LADWP responded by constructing additional Shallow Flooding and a very small amount of Gravel Blanket (0.14 square miles) successfully achieving the required total of 29.8 square miles of operating DCMs by the end of 2006. Upon completion of the 29.8 square miles, LADWP had invested approximately \$430-million in dust control facilities on Owens Lake.

Of the 29.8 square miles of DCMs constructed to date, approximately 26 square miles is Shallow Flooding, 3.75 square miles is Managed Vegetation, and 0.14 square miles is Gravel Blanket. LADWP had no choice but to construct a large amount of Shallow Flooding as California State Lands Commission (CSLC) staff had resisted the use of Gravel Blanket, and the short compliance deadlines precluded the use of Managed Vegetation. The existing 3.75 square miles of Managed Vegetation required 27-million salt grass plants which were produced through an iterative process of planting salt grass to produce seed so that more salt grass could be planted until the number of plants reached 27-million. Therefore, it was not practical to implement Managed Vegetation on a large scale due to compliance schedule restraints. The following table reflects the three District approved DCMs and the extent of their implementation to date:

Dust Control Measure	Water Needs	Advantages	Disadvantages
<p data-bbox="183 251 427 283">Shallow Flooding</p> 	<p data-bbox="760 251 963 304">3 to 5 acre-feet per acre per year</p> <p data-bbox="760 342 954 459">26 square miles in operation using approx. 64,400 acre feet per year</p> <p data-bbox="760 497 963 646">9.2 square miles under construction will use additional 27,000 acre-feet per year</p>	<p data-bbox="995 251 1222 304">Can be implemented quickly</p>	<p data-bbox="1255 251 1417 283">High water use</p> <p data-bbox="1255 310 1442 342">High O&M costs</p>
<p data-bbox="183 697 475 729">Managed Vegetation</p> 	<p data-bbox="760 697 946 751">1.5 acre feet per acre per year</p> <p data-bbox="760 789 954 959">3.5 square miles in operation using approx. 3600 acre-feet per year</p>	<p data-bbox="995 697 1222 751">Uses less water than Shallow Flooding</p>	<p data-bbox="1255 697 1466 815">Cannot be implemented quickly due to need to establish plants.</p> <p data-bbox="1255 846 1433 900">Very high O&M costs.</p> <p data-bbox="1255 938 1466 970">Moderate water use</p>
<p data-bbox="183 1166 402 1198">Gravel Blanket</p> 	<p data-bbox="760 1166 816 1198">None</p> <p data-bbox="760 1229 954 1315">0.14 square miles in operation using no water</p>	<p data-bbox="995 1166 1222 1261">Requires no water and can be constructed quickly.</p> <p data-bbox="995 1293 1182 1325">Low O&M costs</p>	<p data-bbox="1255 1166 1466 1442">California State Lands Commission staff believe gravel is not consistent with Public Trust value and has been unwilling to consider drafting a lease for its use</p> <p data-bbox="1255 1474 1450 1623">Higher initial cost than Shallow Flooding or Managed Vegetation</p>

2006 Settlement Agreement

In December 2005, the District issued its 2004/2005 Supplemental Control Requirement (SCR) determination ordering control of an additional 9.31 square miles, and identified 0.66 square miles as “watch areas”. The City appealed the order to the California Air Resources Board (CARB) and challenged it in court. The District and the City agreed to enter into mediation and participated in sessions throughout the summer resulting in the 2006 Settlement Agreement between the District

and the LADWP Board of Water and Power Commissioners (Settlement Agreement). The Settlement Agreement provides for implementation of water conservation measures, along with the construction of an additional 13.2 square miles of dust control including 9.2 square miles of shallow flooding, 0.5 square miles of modified shallow flooding in an area with sensitive habitat known as the Channel Area, and 3.5 square miles of an experimental dust control measure called Moat and Row, which does not require water. The District prepared an Environmental Impact Report for the 13.2 square miles of DCMs and adopted the 2008 SIP requiring completion of the Moat and Row DCMs by October 1, 2009, and the Shallow Flooding DCMs by April 1, 2010. LADWP responded by beginning the development of Phase 7 of the OLDMP.

Moat and Row Dust Control Measure

The new Moat and Row DCM consists of a series of earthen berms and moats in conjunction with sand fencing to create a series of wind breaks on the lake bed to control sand movement and resulting dust. LADWP constructed two Moat and Row demonstration sites and monitored their performance during the 2007-2008 dust season with very promising results. Implementation of Moat and Row on 3.5 square miles of Owens Lake will save approximately 8000 acre-feet of water each year (enough water for 16,000 households) when compared to the Shallow Flooding DCM.



Moat and Row Demonstration Project



Aerial View of Moat and Row Demonstration Project adjacent to Shallow Flooding OLDMP Phase 7 Project

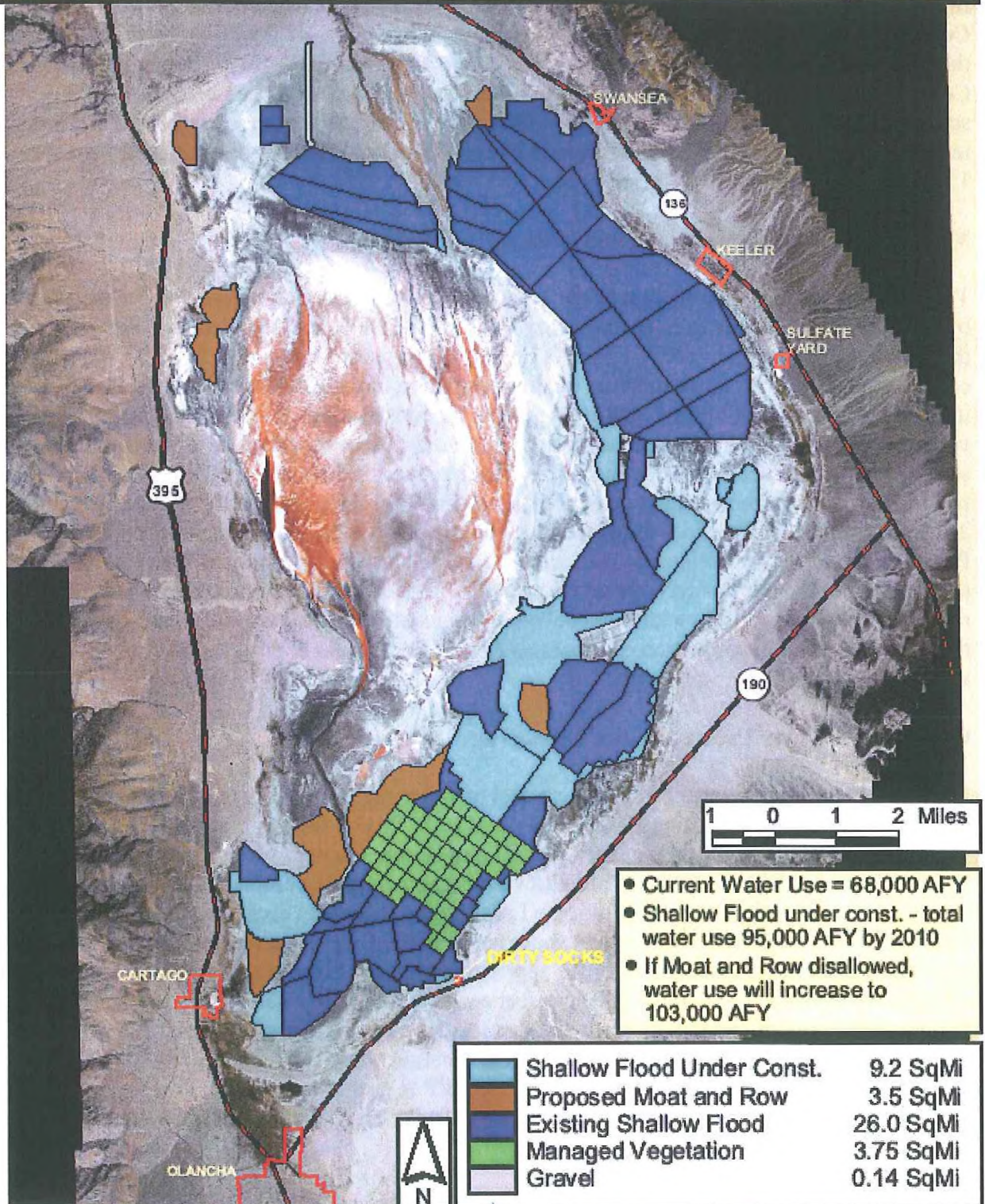
LADWP moved forward with the design and permitting for the Phase 7 Project, but in August 2008, California State Lands Commission (CSLC) staff refused to issue a lease and the California Department of Fish and Game (CDFG) refused to issue a Lake and Streambed Agreement (Section 1600 Permit) for the Moat and Row component of the project. CSLC and CDFG both cited concerns that Moat and Row might have impacts on wildlife, and CSLC expressed concern that Moat and Row would have a negative aesthetic impact and may not be consistent with the Public Trust values of Owens Lake land. LADWP obtained a 1600 Permit and lease amendment for the Shallow Flooding portion of Phase 7 and in November 2008, LADWP entered into a \$119-million contract with Barnard Construction Company and began construction of the 9.2 square miles of Phase 7 Shallow Flooding ponds and the 0.5 square miles of modified Shallow Flooding. LADWP agreed to work with CSLC, CDFG, and the District in the preparation of a Supplemental Environmental Impact Report (SEIR) for the Phase 7 Moat and Row component, with the goal of obtaining certification by LADWP's Board of Water and Power Commissioners in July 2009. However, on March 3, 2009, just prior to the scheduled release of the draft SEIR for public review, CSLC expressed many new concerns, resulting in yet to be determined delays to the SEIR schedule.

Summary of Owens Lake Statistics

DCM Type	Existing Total of 29.8 square miles	After Phase VII is complete (4/1/10) Total of 43 square miles	Future Additions Total > 43 square miles
Shallow flooding	26 square miles	35.7 square miles	0 @ \$13-million per square mile*
Managed Vegetation	3.75 square miles	3.75 square miles	? @ \$15-million per square mile
Gravel	0.14 square miles	0.14 square miles	? @ \$20-million per square mile
Moat and Row	0	3.75 square miles	? @ \$5-million per square mile
Capital Cost	>\$400-million	>\$539-million	?
Water Use			
Total annual water use	68,000 acre-feet per year	95,000 acre-feet per year	95,000 acre-feet per year*
Replacement water cost (at \$800 per acre-foot MWD treated water rate)	\$54.4-million per year	\$76-million per year	\$76-million per year*
Operations & Maintenance			
Annual O&M cost (excluding water)	Approx. \$21-million	Approx \$24-million	\$24-million +

* LADWP is making every effort to limit future water use to 95,000 acre feet or less each year

Owens Lake Dust Mitigation Program



CURRENT STATUS / CONCERNS

Phase 7 Construction

In November 2008, LADWP entered into a \$119-million contract with Barnard Construction Company and began construction of the 9.2 square miles of Phase 7 Shallow Flooding ponds and the 0.5 square miles of modified Shallow Flooding. As of March 31, 2009, Barnard Construction Company had completed approximately \$23.3-million worth of work and is slightly behind schedule. Failure to complete the shallow flooding on schedule may result in LADWP being found in violation of the 2008 SIP, which requires Phase 7 Shallow Flooding to be in compliance by April 1, 2010.

Moat and Row Implementation and 2008 SIP Compliance

The 2008 SIP requires completion of the Moat and Row dust control measure on 3.5 square miles by October 1, 2009. Due to issues raised by CSLC and CDFG, LADWP has not been able to obtain the required lease amendment and permits needed to construct Moat and Row. LADWP staff continues to work with these agencies on the preparation of the SEIR for Moat and Row with the intent of obtaining the required approvals needed for construction. LADWP will be submitting a variance request to the District requesting an extension of time to complete this process. District staff has indicated that they will support a variance request if 3.5 square miles of the Phase 7 shallow flooding currently under construction is completed six months early (by the October 1, 2010 Moat and Row deadline) to compensate for late completion of Moat and Row. However, the Phase 7 contractor is experiencing difficulties in meeting the current project schedule making acceleration of the job unlikely. In addition, CSLC staff continues to make additional requests regarding the SEIR causing additional delays. As a result, LADWP may be found in violation of the 2008 SIP for late completion of Moat and Row if the District hearing board does not grant a variance.

Owens Lake Water Use and Water Conservation Activities

LADWP is currently diverting 68,000 acre-feet of water each year from the Los Angeles Aqueduct for the operation of the existing 29.8 square miles of DCMs on Owens Lake, which is enough water to meet the potable water needs of the City of Long Beach, (enough water for approximately 136,000 households). Once Phase 7 Shallow Flooding ponds are completed, an additional 27,000 acre-feet of water will be diverted from the Los Angeles Aqueduct each year for use on Owens Lake, which is equivalent to the annual water needs of the City of Burbank, including its projected growth, through 2030, (enough water for approximately 54,000 households). Total water use upon completion of Phase 7 will be 95,000 acre-feet each year, (enough water for approximately 190,000 households). Implementation of Moat and Row on 3.5 square miles of Owens Lake will save approximately 8000 acre-feet of water each year (enough water for 16,000 households) when compared to the Shallow Flooding DCM. If LADWP is unable to construct the Phase 7 Moat and Row, water use on Owens Lake could be increased up to 103,000 acre-feet each year, (enough water for approximately 206,000 households).

LADWP staff are coordinating with District staff to implement water conservation measures including re-grading of shallow flooding ponds to increase efficiency, operating closer to the

minimum wetness requirement (increasing the risk of air quality violations), and working toward new regulatory compliance methods that complement responsible water conservation efforts. In addition, a study is underway to explore the potential use of groundwater underlying Owens Lake to determine how much could be used for dust control, which could ultimately reduce the demand for Los Angeles Aqueduct water.

California Water Supply and the need for Conservation

Current drought conditions and recent court rulings reducing pumping in the Sacramento-San Joaquin Delta to protect the Delta Smelt have stressed California's water supply culminating in the recent declaration of a drought emergency by Governor Schwarzenegger. Los Angeles, along with the rest of California, is faced with tremendous challenges in obtaining sufficient water to meet the needs of residents. Due to these new environmental needs, climate change, and increasing population, water supply challenges will likely continue indefinitely. Art. X, Sec. II of the California Constitution requires all water use to be "reasonable and beneficial". Therefore, use of dust control methods that use little or no water, such as Moat and Row or the District approved Gravel Blanket DCM, is critically important to future dust control efforts at Owens Lake. However, CSLC and CDFG continue to prefer dust control methods that require the use of water due to the resulting ancillary benefit of habitat creation.

Prognosis

Owens Lake comprises 110 square miles including almost 80 square miles of playa and a little over 30 square miles of brine pool. LADWP has constructed DCMs on 29.8 square miles of Owens Lake to date, and upon completion of Phase 7, will have constructed DCMs on approximately 43 square miles, or about half of the lakebed area excluding the brine pool. It is certain that some of this yet-to-be controlled area will require DCMs in the future. Due to California's dire water supply conditions, use of waterless dust control measures, such as the District-approved Gravel Blanket DCM, the trial Moat and Row, or newly envisioned solar arrays designed to control dust, will be essential to avoid water supply reliability impacts not only in Los Angeles and the Owens Valley, but state-wide.

Status of Significant Contracts in Support of the Owens Lake Dust Mitigation Program as of March 31, 2009

Agreement No. 47517: Air Sciences, Inc - Science, Technology, and Air Quality Compliance Services

Activity: On-lake air quality monitoring, managed vegetation O&M Plan, Phase 7 Support
 Contract Terms: 3 Years, Expires January 26, 2010

Invoiced to Date (\$)	Budgeted (\$)
5,162,154	8,000,000

Agreement 47830: MWH - Owens Lake Groundwater Evaluation Project

Activity: Provide an independent evaluation of groundwater under Owens Lake to supplement water supply for Dust Mitigation Program
 Contract Terms: 20 month, expires November 3, 2010

Invoiced to Date (\$)	Budgeted (\$)
34,275	2,703,891

Agreement 47803: KDG - Construction Management Service for Owens Lake Dust Mitigation Project - Phase 7

Activity: Provide construction management services for the Phase 7 of Owens Lake Dust Mitigation Project
 Contract Terms: 2 years, expires October 23, 2010

Invoiced to Date (\$)	Budgeted (\$)
1,238,986	8,000,000

Agreement 47514: CDM - Engineering Services for the Owens Lake Dust Mitigation Program

Activity: Provide engineering services for Phase 7 of the Owens Lake Dust Mitigation Project
 Contract Terms: 3 years, expires January 16, 2010

Invoiced to Date (\$)	Budgeted (\$)
9,062,094	10,770,000

Contract 7140 - Construction of the Owens Lake Dust Mitigation Project - Phase 7

Activity: Construction of 9.2 square miles of dust control measures by April 10, 2010
 Contract Terms: Notice to Proceed Issued November 2, 2008. 560 calendar days for completion, May 16, 2010. 10% of payments retained until Project completion.

Invoiced to Date (\$)	Budgeted (\$)
23,307,403	109,027,765