MINUTE ITEM
This Calendar Item No. C79
was approved as Minute Item
No. 79 by the State Lands
Commission by a vote of 3 to 0 at its 11/15/94
meeting.

CALENDAR ITEM
C79

A 15
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11/15/94
W 24777
S. Sekelsky
PRC 7811

CONSIDER APPROVAL OF A GENERAL PERMIT - PUBLIC AGENCY USE - TERMINATION OF LEASES PRC 7409 AND PRC 7633; AND THE 1994-95 OWENS DRY LAKE GROUNDWATER PROGRAM, INYO COUNTY

APPLICANT:
Great Basin Unified Air Pollution Control District
157 Short Street, Suite 6
Bishop, California 93514

AREA, TYPE LAND AND LOCATION:
Approximately 13,960 acres of State-owned sovereign lands in the dry bed of Owens Lake, Inyo County.

LAND USE:
Experimental mitigation and dust abatement program to limit particulate pollution from the bed of Owens Lake.

CURRENT TERMS:
Lease/Permit Period:
Three years beginning May 1, 1992.

PROPOSED TERMS:
Lease/Permit period:
Five years, eight months beginning May 1, 1992.

CONSIDERATION:
The public use and benefit, with the State reserving the right at any time to set a monetary rental if the Commission finds such action to be in the State's best interest.

BASIS FOR CONSIDERATION:
Pursuant to 2 Cal. Code Regs. 2003.

STATUTORY AND OTHER REFERENCES:
A. P.R.C.: Div. 6, Parts 1 and 2; Div. 13.

B. Cal. Code Regs.: Title 3, Div. 3; Title 14, Div. 6.

AB 884:
N/A

OTHER PERTINENT INFORMATION:

1. At its May 5, 1992, meeting, the State Lands Commission (SLC) approved a General Permit - Public Agency Use, a Memorandum of Agreement, and a Joint Power Agreement with the Great Basin Unified Air Pollution Control Board (GBUAPCB) for an Experimental Dust Mitigation Program on Owens Dry Lake. Issuance of the proposed replacement lease will allow the Experimental Dust Mitigation Program to continue until completion.

2. At its May 5, 1992, meeting, the SLC, pursuant to Commission's delegation of authority and State CEQA Guidelines (14 Cal. Code Regs. 15025), certified that Negative Declaration, EIR ND 587; State Clearinghouse #92032104 was prepared for the Experimental Dust Mitigation Program.

3. The "1994-1995 Owens Dry Lake Groundwater Well Program" proposes to construct two groundwater wells which is a modification of one component and a continuation of another addressed in the May 5, 1992 SLC approved Experimental Dust Mitigation Program. One well will be utilized to ascertain aquifer characteristics and to conduct research on the south "Flood Irrigation Project" site, while the other will be constructed to verify the geologic structures observed by the seismic reflection survey and to test aquifers encountered for possible sustained yield impacts.

4. On October 4, 1994, the GBUAPCD approved and adopted the Negative Declaration (SCH #94082021) for the "1994-1995 Owens Dry Lake Groundwater Well Program".

5. This activity involves lands identified as possessing significant environmental values pursuant to P.R.C. 6370, et seq. Based upon the staff's consultation with the persons nominating such lands and through the CEQA review process, it is the staff's opinion that the project, as proposed, is consistent with its use classification.

6. The termination of leases PRC 7409 and PRC 7633 will facilitate the combining of outstanding leases on Owens Dry Lake involving the GBUAPCB.

7. The proposed replacement lease includes all areas previously included in PRC 7409 and PRC 7633 thereby a quitclaim deed will not be necessary upon termination of PRC 7409 and PRC 7633.

EXHIBITS:

A. Land Description
B. Location Map
C. Initial Study, Negative Declaration and Mitigation Monitoring (Final) October 5, 1994.

IT IS RECOMMENDED THAT THE COMMISSION:

1. FIND THAT A NEGATIVE DECLARATION WAS PREPARED AND ADOPTED FOR THE PROJECT BY THE STATE LANDS COMMISSION, EIR ND 587, STATE CLEARINGHOUSE #92032104 PURSUANT TO THE PROVISIONS OF CEQA AND THAT THE COMMISSION HAS AGAIN REVIEWED AND CONSIDERED THE INFORMATION THEREIN.

2. DETERMINE THAT THE PROJECT, AS APPROVED, WILL NOT HAVE SIGNIFICANT EFFECT ON THE ENVIRONMENT.

3. FIND THAT A NEGATIVE DECLARATION CONTAINING A MITIGATION MONITORING PROGRAM, STATE CLEARINGHOUSE #94082021 WAS PREPARED AND ADOPTED FOR THE GROUNDWATER WELL PROGRAM BY THE GREAT BASIN UNIFIED AIR POLLUTION CONTROL BOARD AND THAT THE COMMISSION HAS REVIEWED AND CONSIDERED THE INFORMATION CONTAINED THEREIN.

4. FIND THAT THIS ACTIVITY IS CONSISTENT WITH THE USE CLASSIFICATION DESIGNATED FOR THE LAND PURSUANT TO P.R.C. 6370, ET SEQ.

5. AUTHORIZE TERMINATION OF LEASES PRC 7409 AND PRC 7633.

6. AUTHORIZE ISSUANCE TO THE GREAT BASIN UNIFIED AIR POLLUTION CONTROL BOARD OF A FIVE YEAR, EIGHT MONTH REPLACEMENT LEASE, RETROACTIVE TO MAY 1, 1992; IN CONSIDERATION OF THE PUBLIC USE AND BENEFIT, WITH THE STATE RESERVING THE RIGHT AT ANY TIME TO SET A MONETARY RENTAL IF THE COMMISSION FINDS SUCH ACTION TO BE IN THE STATE'S BEST INTEREST; FOR APPROVAL OF A GENERAL PERMIT - PUBLIC AGENCY USE ON THE LAND DESCRIBED ON EXHIBIT "A", ATTACHED AND BY REFERENCE MADE A PART HEREOF.

EXHIBIT A

All that portion of the following described lands lying waterward of the U.S. meander line of Owens Lake, Inyo County.

T. 16 S., R. 36 E., M.D.B. & M.

Projected Section 13, 23, 24, 25, 26, 35 & 36

T. 16 S., R. 37 E., M.D.B. & M.

Projected sections 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, & 36

T. 17 S. R. 37 E., M.D.B. & M.

Projected Sections 1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15, 24, 25, 35 & 36

T. 17 S., R. 38 E., M.D.B. & M.

Projected Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32 & 33

T. 18 S., R. 37 E., M.D.B. & M.

Projected Sections 1, 2, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 31, 32, 33, & 34

T. 18 S., R. 38 E., M.D.B. & M.

Projected Sections 5, 6, 7, 8, 18, & 19

T. 19 S., R. 37 E., M.D.B. & M.

Projected Sections 4, 5, & 6

Excepting all lands not under the jurisdiction of or presently under lease with State Lands Commission.

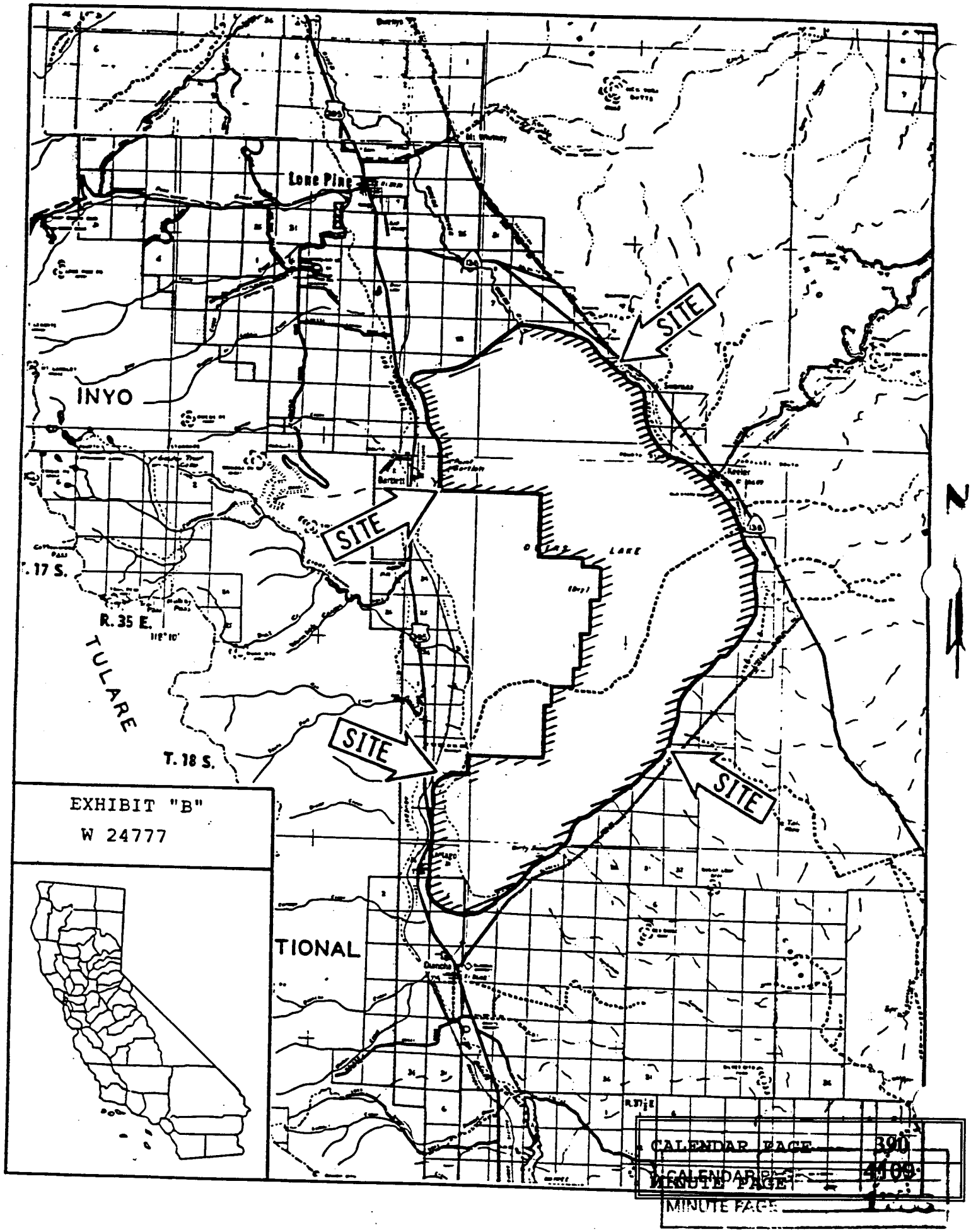

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EXHIBIT C

Initial Study and Negative Declaration for

1994-1995 OWENS DRY LAKE GROUNDWATER WELL PROGRAM

FINAL

October 5, 1994

Great Basin Unified Air Pollution Control District
157 Short Street, Bishop California 93514
(619)872-8211

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Ellen Hardebeck
Control Officer

GREAT BASIN AIR POLLUTION CONTROL DISTRICT

157 Short Street • Bishop, California 93514 • (619) 872-8211 • fax (619) 872-6109

August 1, 1994

NOTICE OF PUBLIC REVIEW OF A PROPOSED NEGATIVE DECLARATION PER SECTION 15073 CCR

A Negative Declaration has been prepared pursuant to the requirements of the California Environmental Quality Act (Section 21000 et seq., Public Resources Code), and the State of California Environmental Quality Act Guidelines (Section 15000 et seq., Title 14, California Code Regulations) for a project currently being proposed by the staff of the Great Basin Unified Air Pollution Control District known as the 1994-1995 Owens Dry Lake Groundwater Well Program.

The document is attached for your review. Comments should be addressed to the Projects Manager, Mr. Theodore D. Schade at the District's office at the above address. All comments must be received by September 16, 1994.

Should you have any questions or need additional information, please call me or Mr. Schade.

Sincerely,

Ellen Hardebeck

Dr. Ellen Hardebeck
Air Pollution Control Officer

Attachment

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GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

NEGATIVE DECLARATION

Pursuant to the requirements of the California Environmental Quality Act (Section 21000 et seq., Public Resources Code), and the State of California Environmental Quality Act Guidelines (Section 15000 et seq., Title 14, California Code Regulations), the Great Basin Unified Air Pollution Control District has made an initial study of the possible environmental impacts caused by the following project:

Project Applicant:	Great Basin Unified Air Pollution Control District 157 Short Street, Bishop California 93514
Project Name:	1994-1995 Owens Dry Lake Groundwater Well Program
Project Location:	Owens Dry Lake bed between 2 and 5 miles southwest of Keeler, California. (See map in Initial Study)
Project Description:	Two groundwater wells for use in conjunction with the reduction of dust emissions from the bed of Owens Dry Lake. See Initial Study for details.
Mitigation Measures:	See Initial Study, Environmental Checklist and Mitigation Monitoring Program.
SCH No:	94082021
Contact Person:	Theodore D. Schade, Projects Manager, (619) 872-8211
Findings:	The proposed project should be issued a Negative Declaration because all issues identified in the Initial Study can be mitigated with the recommended measures, and therefore, the project will not have a significant negative impact on the environment.

Any person may object to dispensing with the preparation of an Environmental Impact Report on the proposed project, or may respond to the findings contained in the Initial Study. Information related to the project is on file in the District office at the above address. Any person wishing to examine or obtain a copy of that information or this document may do so by inquiring at the District office during regular business hours.

Ellen Hardebeck

Dr. Ellen Hardebeck, Air Pollution Control Officer
Great Basin Unified Air Pollution Control District

August 4, 1994
Date

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INITIAL STUDY FOR
1994-95 OWENS DRY LAKE GROUNDWATER WELL PROGRAM

Introduction

The Great Basin Unified Air Pollution Control District (GBUAPCD) has prepared the following Initial Study to analyze the effects of two proposed groundwater wells to be located on the bed of Owens Dry Lake and to be used for air pollution control research. The GBUAPCD is the proponent of this project and is the Lead Agency for purposes of the California Environmental Quality Act (CEQA). This document is prepared pursuant to the requirements of the CEQA (Section 21000 et seq. of the Public Resources Code) and the State CEQA Guidelines (Section 15000 et seq. of Title 14, California Code of Regulations).

This Initial Study concludes that the program, as proposed, incorporates mitigation measures that will avoid potentially significant environmental impacts and that the program will not have any significant impacts on the environment. A Negative Declaration is therefore appropriate under the provisions of Section 15070 of the State CEQA Guidelines.

Project Description

Background

In 1987, the Federal Environmental Protection Agency (EPA) revised the National Ambient Air Quality Standards (NAAQS) for suspended particulate matter less than 10 microns in diameter (PM-10). This change was intended to measure and reduce the fraction of suspended particles in the air that is injurious to human health. Also in 1987, EPA identified the southern Owens Valley as one of the areas in the nation that violated the PM-10 NAAQS. Subsequent monitoring by the GBUAPCD has verified that extremely high PM-10 values (as much as 10 times the standard) occur downwind of Owens Dry Lake. Consequently, the EPA has required the State of California to prepare a State Implementation Plan (SIP) that brings the southern Owens Valley into compliance with the NAAQS. An initial SIP was prepared by the GBUAPCD in 1988, an update was prepared in 1991 and a version known as a Best Available Control Measures (BACM) SIP was prepared in 1994. These documents have identified Owens Dry Lake as the major contributor to the PM-10 violations in the Valley.

The most recent version of the SIP (the BACM SIP) was adopted by the GBUAPCD in June 1994 and forwarded to the State of California Air Resources Board (CARB) for submission to the EPA. The BACM SIP identified three control measures to be immediately pursued on Owens Lake: shallow flood irrigation,

vegetation establishment and sand fences. All three of these measures are currently being tested on the lake bed and were analyzed for environmental impacts by the lake bed land owner, the California State Lands Commission in May 1992. The May 1992 Negative Declaration (State EIR No. ND587) also addressed a number of other projects that involved the development of a better understanding of the lake bed ecosystem such as surface water, shallow groundwater and deep groundwater resource investigations, a dust transport study and detailed mapping of the lake bed and surrounding areas.

Proposed Project

The currently proposed project to construct two groundwater wells is both a modification of one of the components and a continuation of another component of the program addressed in the May 1992 Negative Declaration.

The original program contained an element known as the "Wetlands Dust Bioremediation Test." This component has since been renamed the "Flood Irrigation Project" (FIP). The FIP is planned to take place at two test sites on the lake bed: a north site approximately 2 miles northeast of Keeler and a south site approximately 5 miles south of Keeler (see Figure 1). Originally the south site was to utilize water from an existing GBUAPCD well on the shore of the lake bed about 2½ miles southeast of Keeler known as the "Mill Site Well." This well is not artesian and would require a power supply and a pump station in order to extract groundwater for use on the lake bed. The south site test has been redesigned to utilize water from a proposed artesian well, known as the "South FIP Well," to be located on the lake bed. As this well will very likely be artesian, it will not require a pump station or power supply. An additional benefit of the proposed well is that it will be located approximately 4 miles farther away from the community of Keeler's water supply well than the Mill Site Well. The artesian flows from this well will be utilized only to ascertain aquifer characteristics and to conduct research on the south FIP site.

The second proposed well is being installed as a continuation of a component of the May 1992 program known as the "Deep Aquifer Investigation." The objective of this component is to determine the amount of water that can be extracted from the local groundwater aquifers, on a sustained basis, without causing any significant impacts on the environment. The work addressed by the May 1992 Negative Declaration was the performance of a lake-wide seismic reflection survey to determine subsurface geologic structures. The second proposed well, to be known as the "Jarvis Well," will be constructed to verify the geologic structures observed by the seismic reflection survey and to test the aquifers encountered. At this time, the only water extraction planned from this well will be for 3- and 90-day aquifer testing. There are no current plans to utilize additional water from this well.

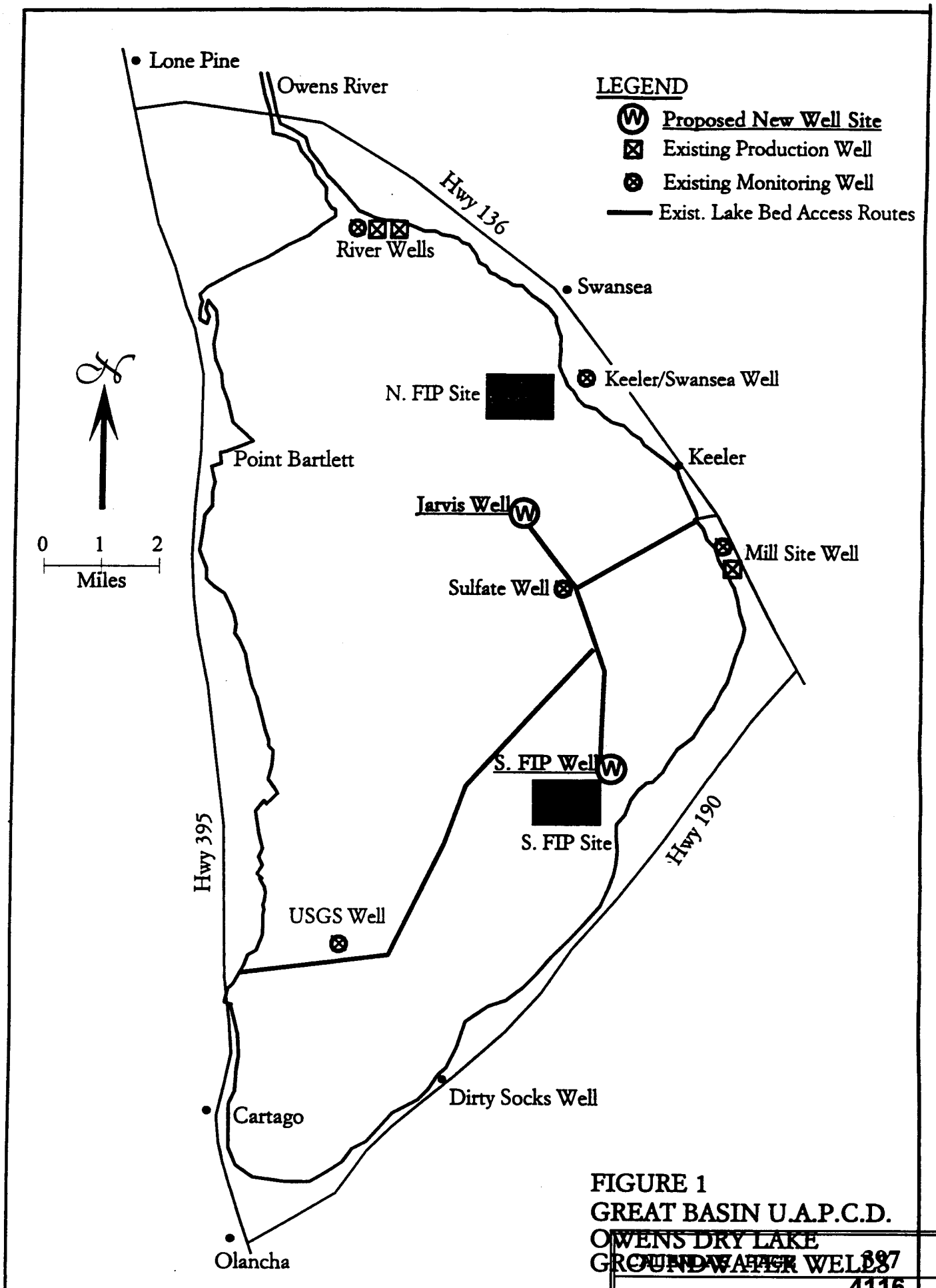


FIGURE 1
GREAT BASIN U.A.P.C.D.
OWENS DRY LAKE
GROUNDWATER WELLS

Well Descriptions

The two wells will be located on the bed of Owens Dry Lake. The South FIP Well will be located approximately 6 miles south of the Town of Keeler and 1 mile from the historic shoreline of Owens Lake. The Jarvis Well will be located about 2 miles southwest of Keeler. Figure 1 shows the locations of the proposed well sites.

No new roads will be constructed to gain access to the proposed sites. However, some improvements to existing roads may be required to allow access by construction equipment. These improvements would consist of minor regrading and/or graveling of existing road beds.

A well pad will be constructed at each well to provide rig stability during drilling and to prevent flooding of the well areas. The pads would consist of a graded earthen platform approximately 50 feet by 50 feet by 1 foot high and would be constructed of imported material. Each site would also have a temporary water pond for storage of drilling process water. The ponds will be approximately 80 feet in diameter and 6 feet deep and would be backfilled upon completion of the drilling.

Small diameter exploratory holes will first be drilled at each site in order to ascertain the physical characteristics of the local aquifers. These holes would be approximately 700 feet deep and would be completed as monitoring piezometers in order to provide continuous observation of aquifer levels.

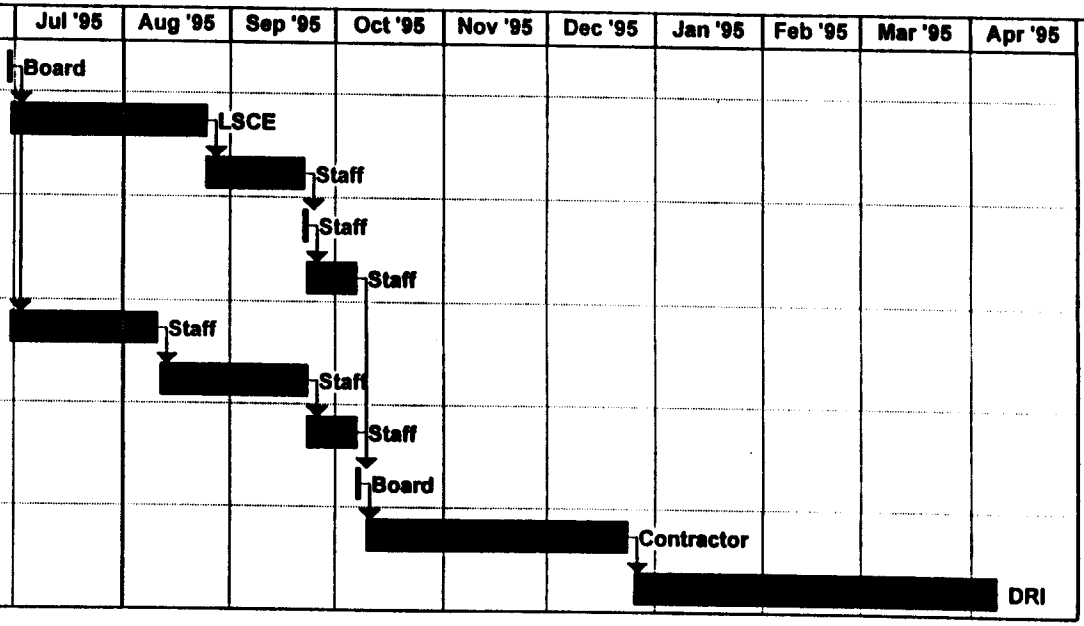
If aquifers suitable for production development are encountered by the exploratory drilling, production wells will be designed and drilled at each site. The depth, diameter and screen location of the production wells will be based on the data obtained during the exploratory hole drilling.

If the wells appear to be suitable for future production, they will initially be allowed to flow for a three day period and possibly for a 90-day period in order to ascertain aquifer characteristics. The District's monitoring piezometers throughout the Lake basin will be examined during the tests in order to observe possible local or area-wide effects.

Construction is scheduled to begin on the lake bed in mid-October. Construction will be complete by the end of December. Aquifer testing would take place in January through April. See project schedule in Figure 2.

FIGURE 2 - 1994/95 Owens Lake Well Construction

ID	Task Name	Duration	Start	Finish
1	Authorize well design	1d	6/29/94	6/29/94
2	Well design	8w	6/30/94	8/24/94
3	Advertise for bids	4w	8/25/94	9/21/94
4	Open bids	1d	9/22/94	9/22/94
5	Prepare bids for award	2w	9/23/94	10/6/94
6	Prepare negative dec	6w	6/30/94	8/10/94
7	Circulate negative dec	6w	8/11/94	9/22/94
8	Respond to comments	2w	9/23/94	10/6/94
9	Certify neg dec/award cont	1d	10/7/94	10/7/94
10	Well construction	11w	10/10/94	12/23/94
11	Aquifer testing	15w	12/26/94	4/7/95



Environmental Setting

The proposed project area is the dry bed of Owens Lake. Owens Lake is an alkaline dry lake, or playa, in the southern end of Inyo County on the eastern side of the Sierra Nevada mountain range. The elevation of the lake bed varies between 3,550 and 3,600 feet above sea level (fasl). The lake bed extends about 17 miles north and south and 10 miles east and west and covers an area of approximately 70,000 acres. The current lake bed surface consists of eight different playa environments: salt pan, salt crust, mud flat, sand flat, dunes, delta deposits, beach deposits and spring mounds.

Saint-Amand (1986), and references cited therein, provide evidence that a lake or a series of lakes existed in the proto-Owens Valley from at least the early Pleistocene, about 1.8 million years ago. During much of this time frame, the water in the lake flowed out of the basin through Rose Valley and into China Lake. Although it is thought by many that Owens Lake probably dried up several times during the Pleistocene, two deep cores on the lake bed have failed to identify any previous episodes of complete desiccation. The high stand of the lake that produced the shorelines at an elevation of 3,880 fasl is estimated to have occurred 15,000-16,000 years ago. It is believed that from this date to the present that Owens Lake has been a continuously closed basin.

During historic times the lake has been a focus for mining interests. Silver mines on the east shore led to steam navigation on the lake, and attempts to recover valuable salts from the lake itself began in 1884. Sodium carbonate (trona) mining began to provide a major raw material for glass manufacturing. Historic lake levels were as high as 3597 in 1872 (LADWP,1994).

Drought and extensive irrigation in the Owens Valley around the turn of the century caused the lake level to drop as low as 3564 in 1905. However, as the drought ended, by 1912 the level had risen to 3587 and remained as high as 3585 in 1917. In 1913, the City of Los Angeles completed a fresh water aqueduct system and began diverting the water of the Owens River south to Los Angeles. As demand increased in Los Angeles and irrigation continued (mainly on City owned property) in the Owens Valley, by 1930 Owens Lake was virtually dry; its level had dropped to 3554 fasl (St. Amand, 1986 and LADWP, 1994).

Air Quality

Normally, air quality in the Owens Valley is excellent. However, the region does experience periods of strong winds that result in blowing sand and dust. Such episodes contribute to visibility degradation and an overall reduction in air quality from suspended particulate matter (PM-10) over a wide region.

The 1988, 1991 and 1994 Owens Valley PM-10 SIPs describe the impetus behind

the development of dust mitigation efforts on the Owens Lake bed. The SIPs identify that the violations of Federal and State PM-10 standards in the southern Owens Valley are primarily the result of dust storms arising from the dry bed of Owens Lake. These dust storms produce significant reductions in the air quality downwind of the lake and create conditions that exceed the significant harm to health levels set by the EPA.

Geology

Owens Valley is a fault-bounded basin, between the upraised blocks of the Sierra Nevada, Inyo Mountains and Coso Mountains. The lake bed itself is made up of Holocene alluvium and lacustrine deposits. The project area is within a seismically active region. Significant earthquakes have been recorded from 1872 to the present. Historic earthquakes have had epicenters on the Owens Lake Fault, the Sierra Nevada Fault, and several unnamed faults on the east side of the lake bed. Estimates of magnitude range from 7.0 to 8.0 on the Richter scale. The lake deposits may liquify under strong seismic shaking.

Soils

Soils on the Owens Lake bed are generally moist to within one to six inches of the surface throughout the year. Salt crusts of varying thicknesses and textures can develop on the lake bed surface throughout the year depending on moisture and weather conditions. When wind speeds exceed the soil erosion threshold, dust emissions rise from the dried and damaged surface soils.

As shown in Figure 3, eight different playa surfaces have been identified in earlier investigations by the Desert Research Institute. These are, in order of descending size, salt pan, salt crust, mud flat, sand flat, dunes, delta deposits, beach ridges and spring mounds. The salt pan in the center of the lake bed is the largest single area. Salt crusts are interspersed along the perimeter of the salt pan with the largest crust areas existing at the eastern side between Keeler and Olancha. Mud flats and sand flats make up the remainder of the eastern and southern portions of the lake bed while a large delta deposit is interspersed with smaller crust areas along the northern end of the bed. Beach ridges exist between salt crusts along the western shore.

The salt crust undergoes an annual cycle in terms of both hardness and adhesion. Typically during the summer months, the surface crust and sublayer are hard. At these times, the hardness of the base layer allows four-wheel drive vehicles to traverse the lake bed on a line from Keeler to Olancha with little difficulty except in a few softer areas where surface drainage from shoreline springs weakens the sublayer. Where the crust is direct contact with the sublayer, it forms flat plates of hydroscopic crystals.

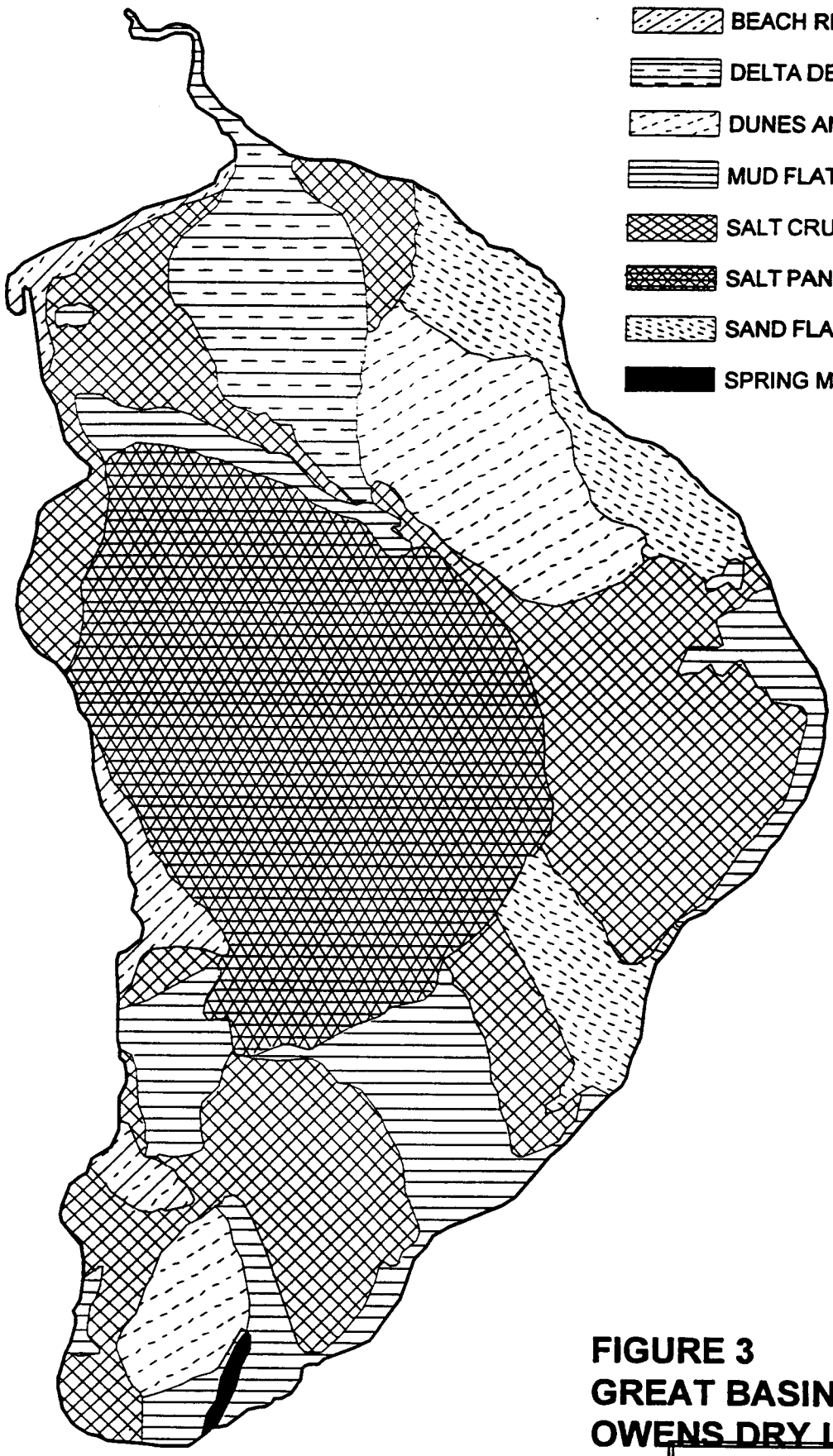


FIGURE 3
GREAT BASIN U.A.P.C.D.
OWENS DRY LAKE
SURFACE SOIL TYPES

A noticeable change in the salt crust occurs in early winter as a result of a combination of cooler temperatures and precipitation. The first rain of the winter season creates a rapid series of changes in crust morphology. Water dissolves the salt crust and leaches salts from the surface layers. The clays left behind are saturated with water and become slippery, but remain very cohesive. During this period, traversing the surface with vehicles becomes almost impossible due to a lack of traction and frictional drag.

During the Spring and dry Winter periods, the surface dries rapidly and becomes a wick for the salts that were dissolved by the rains. Capillary action brings the salt back to the surface. At this point, the semi-soft surface crust undergoes a buckling action as it forms numerous irregular knobs that are soon covered with a white salt powder. The thin crust separates from the sublayer except along irregular support points. With the onset of warmer temperatures and the end of the rainy season, the sublayer surface under the crust dries and a fine white powdery aggregate layer may form at the surface; its appearance is often mistaken for snow by passing traffic along the highway.

The on-lake sand flats, dunes and megaripples represent a second source for airborne dust. Sand fields are defined, for this study, as areas with a depth of sand greater than one-quarter inch. The largest sand fields exist along the lake bed perimeter northwest of Keeler and in the south east near Dirty Socks Well. Many smaller fields are scattered along the eastern side of the lake bed, and some large, mobile dunes have formed in the east-central part of the bed. These fields both provide a source of emissions and a source of sand that can damage the salt crusts and increase the emissions from those areas as well.

Climate

Weather in California is a continuous series of interactions between maritime air masses and those of continental origin. The Owens Valley and Lake are well protected from the maritime influences by the mass of the Sierra Nevada, and so experience a much more continental climate pattern. This climate is characterized by warmer summers, colder winters, greater daily and seasonal variation in temperatures and generally lower relative humidities than maritime climates.

According to the National Weather Service and data gathered by the GBUAPCD, summer temperatures in the valley often exceed 100° F, followed by evenings in the mid-60's. Afternoon temperatures in mid-winter are moderate and, on the average, only fail to rise above freezing about 10 days per year. More than half of the area's precipitation, falling largely as a mix of rain and snow, occurs from

December to March. Precipitation totals range from 5 to 10 inches per year. Summer rain comes mainly as brief thundershowers in the middle to late afternoon. Humidity is low during the summer months and moderately low during the winter months.

The intensity and duration of surface winds over the Owens Lake area, within 300 feet of ground level, are governed by the topography which influences the large-scale synoptic patterns over the Basin and Range provence. This results in the vast majority of surface winds flowing up-valley (predominantly from the south or southeast) or down-valley (north or northwest). Four main wind flow patterns have been observed in the Owens Lake area, two resulting in up-valley flow and two resulting in down-valley flows. Up-valley flows usually stem from storm fronts passing south of the Owens Valley or local heating differentials between the valley floor and the surrounding mountains. Down-valley flows come from channeling of prevailing maritime westerlies or local drainage flows resulting from radiative cooling of the mountains. An important threshold wind velocity for blowing surface materials is approximately 17 mph at 33 feet (10 m) above the surface.

Winter weather can occur from November through February. During this season, down-valley surface winds are prevalent. During this time of year, up-valley winds greater than 10 mph occur less than 10 percent of the time, usually as a result of storm front passage. Spring weather (March through June) results in an equal occurrence of up-valley and down-valley patterns. Both patterns have winds greater than 10 mph over 20 percent of the time. The summer pattern (July and August) has up-valley winds predominating, with down-valley winds of greater than 10 mph appearing less than 5 percent of the time. The Fall pattern is weak and is comprised of either a continuation of the summer pattern or an early beginning of winter.

The typical daily pattern of wind movement is a down-valley movement at night and in the morning, and up-valley flow in the evening. The drainage effect, one of the conditions of down-valley winds, is stronger in the winter, while the upslope effect, which produces up-valley flows, is stronger in the summer., particularly in the afternoon. Beginning in June, the up-valley flow begins to be established earlier in the morning which accounts for higher proportions of up-valley winds at this time of year. The strongest winds, those associated with storm fronts, usually have a westerly component, and their intensity and duration depends on the track of the storm. While strong west winds do occur occasionally in the area, the more frequent direction of strong winds is northwesterly. The peak gust experienced annually in the area is usually between 65 mph and 75 mph.

Water

Owens Lake lies within a hydrologically closed basin. It is located between the Sierra Nevada range on the west and the Inyo and Coso Mountains on the east. Elevations range from 3,550 fasl on the lake bed to 14,495 fasl at Mount Whitney. The basin is bounded by the basement rock complex-valley fill contact on the east and west as well as on the north and south surface flow divides.

Water inflow to the Owens Lake basin comes from four sources: 1) precipitation; 2) the Owens River; 3) intermittent mountain runoff; and 4) subsurface flow from outside the basin.

Owens Lake is within the "rain shadow" of the Sierra Nevada range, immediately to the west. Precipitation along the eastern slopes of this range decreases sharply along with elevation. The annual rainfall along the Sierra crest is over 22 inches per year, while Keeler, on the east side of the Owens Lake, receives less than 4 inches, on average. Nonetheless, precipitation still provides the largest component of water inflow into the basin. An average of 75,000 acre-feet falls on Owens Lake and the surrounding valley fill deposits.

The Owens River carries an estimated base flow of approximately 3,000 acre-feet of water annually to Owens Lake. During high runoff years, water is released from the aqueduct system into the lower Owens River for operational purposes. The mean annual inflow to the lake at the Keeler Bridge for the period 1940 to 1980 is 10,700 acre-feet.

Runoff from the surrounding mountains is the second largest component of inflow to the area. Significant recharge of the groundwater basin occurs when the creeks pass over the highly permeable alluvial material surrounding the lake. Approximately 45 percent of the base of mountain flow infiltrates the groundwater basin by the time the flow reaches the aqueduct. Occasional flash floods reach the lake through numerous intermittent stream channels. An estimated 40,000 acre-feet recharges the Owens Lake Basin groundwater system annually.

Subsurface inflow to the groundwater system occurs from Centennial Flat, the intermediate mountain recharge area and the upper Owens Valley. An estimate of the average subsurface inflow to the basin is 18,800 acre-feet per year.

Owens Lake is located at the lowest point within the basin and groundwater entering the area as subsurface flow and percolating runoff generally flow towards the lake. Several well-defined aquifers exist below Owens Lake. The aquifers consist of coarse sand and gravel separated by layers of clay. Water naturally

escapes the groundwater basin as spring flow or evaporation of confined water leaking upward.

Several springs exist along the margins of the lake bed, some flowing intermittently and others permanently. These have been poorly mapped and their flows are not documented. Those with stronger or more lasting flows have generated wetland areas along the old lake shore. These areas support some salt-resistant plants and related wildlife.

A large confined aquifer system about 250-300 feet deep exists on the eastern side of Owens Lake. Several artesian wells near the eastern shore of the lake tap into this aquifer and flow at between 300-600 gallons per minute. These wells are sometimes called "springs" and provide the source of the ponds in the interior of the lake bed. Some plants have established themselves near the water and algal mats have formed in most of the ponds. This aquifer is most likely recharged by runoff from the Inyo Mountains. The western extent of this aquifer is unknown, but it appears to extend southerly beneath the eastern portion of the lake. (LADWP for GBUAPCD, 1988).

Biology

The descriptions of the biological setting in this section are derived from the Negative Declaration prepared by the California State Lands Commission for the May 1992 program.

The Owens Lake area is considered essentially an ecotone between the northern Mojave Desert and the Great Basin Desert. This implies that one might find plant or animal species from either or both regions within the project area. However, the Owens Lake area has the dry, hot summers characteristic of the Mojave, but the elevations provide the colder winters of the Great Basin and this tends to limit species one might otherwise expect to find. The high salinities and absence of vegetation limits many other species.

Vegetation

The vegetation in the project vicinity was characterized by the GBUAPCD in a Negative Declaration prepared in 1988. In this document, Groeneveld describes three plant communities (assemblages) on the margins of, and onto, the lake surface. The vegetation classification is based primarily on hydrology and geochemistry. In increasing order of drought and salt tolerance, the communities identified are: 1) emergent aquatic vegetation: 2) phreatophytic vegetation (plants which tap ground water); and 3) desert fan/lake margin vegetation.

Emergent aquatic vegetation, while uncommon at Owens Lake, is dominated by plants that grow in relatively fresh water. In the project area, this vegetation occurs only around the springs located on the lake margins. Species typical for this community include bulrushes (*Scirpus* sp.) and cattail (*Typha* sp.). Less frequently, floating plants such as duckweed (*Lemna* sp.) or water fern (*Azolla* sp.) can also be found. The springs and wells further on to the lake bed do not support this group of plants because the dissolved salt level is too high. Mapping coverage for this group is good and the probability of discovering previously unknown locations around the lake bed is low.

Phreatophytic vegetation is dominated by plants that require shallow groundwater, but have a higher tolerance for drought and soil salts than do the freshwater plants described above. This community is often dominated by alkaline meadow grasses such as alkali sacaton (*Sporobolus airoides*), saltgrass (*Distichlis spicata* var. *stricta*), and rabbitfoot grass (*Polypogon monspelliensis*). Other plants found in association with these grasses include wire rush (*Juncus balticus*), the herb yerba mansa (*Anemopsis californicum*) and the wild sunflower (*Helianthus annus* var. *jaegeri*). Around the margins of the interior springs the dominant shrubs are rabbitbush (*Chrysothamnus nauseosus* var. *viridulus*) and greasewood (*Sarcobatus vermiculatus*).

The last community, desert fan/lake margin vegetation, includes those plants that do not require groundwater, existing on precipitation water alone. They also have a fairly high tolerance to the dissolved salts which have become enriched in the local soils. The dominant perennials in this group are the shrubs cheesebush (*Hymenochlea salsola*), shadscale (*Atriplex confertifolia*), spiny sagebrush (*Artemisia spinescens*), desert tomato (*Lycium* sp.) and spiny horsebush (*Tetradymia axilaris*). Parry's slatbush (*Atriplex parryi*) and desert holly (*Atriplex hymenelystra*) is common on the southeastern margins of the lake.

These communities exist almost exclusively on the margins of the old lake, with very little colonization of the lake bed interior. The first two communities, emergent aquatic and phreatophytic, exist where soil wetness, fine soil texture and low soil oxygen preclude upland plants of the third community and foster the growth of wetland species. The amount and salinity of the water available determine which of the first two communities predominate at a given site. The third community, desert fan, occupies the majority of the margins, occupying the fans encroaching on the lake from the surrounding mountains which are very well drained and above the areas of shallow groundwater. The boundary lines between communities can fluctuate over time as the groundwater level goes up or down, or, on a shorter scale, during exceptionally wet or dry years.

Vegetation is almost absent on the surface of the lake bed itself. Occasional colonists venture onto the surface in wetter years, but are almost universally killed

by lack of water or sand blasting. Earlier experiments have shown that plants can establish themselves on the playa soils, but need varying degrees of soil conditioning, supplemental water and/or sand protection for long-term survival. GBUAPCD is currently conducting research regarding the establishment of plants directly on the lake bed. There are no plants of any kind at the proposed project sites.

The species that dominate the three communities around Owens Lake are found throughout the Owens Valley, the Northern Mojave Desert and the Western Great Basin. Although they may be infrequent around the saline environments of Owens Lake, none of the species found in the communities are unique in the region.

Sensitive Plants

From a review of records (12/01/91) in the Natural Diversity Data Base (NDDB) of the California Department of Fish and Game, three sensitive plant species have been identified as potentially occurring with the project area:

1. Owens Valley Checkerbloom (*Sidalcea covillei*)
   State Endangered; Federal Candidate 2; CNPS List 1B
   Habitat: Moist alkaline meadows & freshwater seeps, fine sandy loam soil (one occurrence) in stoney calcareous soil; 3500-5000 ft.

2. Nevada Oryctes (*Oryctes nevadensis*)
   Federal Candidate 2, CNPS List 2
   Habitat: Chenopod scrub, mojavean desert scrub; dry sites in loose sandy soil in washes and desert foothills in the Owens Valley; 3600-4000 ft.

3. Inyo County Mariposa Lily (*Calcochortus excavatus*)
   Federal Candidate 2; CNPS 1B
   Habitat: Alkaline meadows; mostly fine, sandy loam with alkaline salts; 4000-6400 ft.

As the proposed project sites contain no plant life of any kind, the chances are nonexistent that these rare plants would occur in areas that would be affected by the proposed project.

Wildlife

One habitat that has had insufficient study to date is the ponds and springs around the lake margin. It is possible that various aquatic species live in these

environments, isolated from other similar groups by the prehistoric fall of the lake level and the more recent desiccation of the lake bed. The current project will not effect the hydrology of any of these springs, and further environmental work will be done before later expansions of any of the mitigation measures are implemented.

Amphibians are noticeably absent in the project area, as is to be expected in an area with so little water, and much of the water that does exist being so saline. Surveys done in conjunction with earlier projects have found Great Basin Spadefoot Toads (*Scaphipus intermontanus*) and Red-spotted Toads (*Bufo punctatus*) in low densities around some of the fresher marginal springs. No amphibians have been seen around the interior sulphate springs.

As might be expected, reptiles are better represented than the amphibians. Several species of both lizards and snakes are known to inhabit the Owens Valley, and most are at least occasional visitors to the lake bed. Surveys have not been done for reptiles on the lake bed or around the margins, but the following may be present according to range maps:

Desert Banded Gecko	*Coleonyx variegatus*
Mojave Zebra-tailed Lizard	*Callisaurus draconoides rhodostictus*
Desert Iguana	*Dipsosarus dorsalis dorsalis*
Long-nosed Leopard Lizard	*Gambelia wislizenii wislizenii*
Southern Desert Horned Lizard	*Phrynosoma platyrhinos calidiarum*
Western Chuckwalla	*Sauromalus obesus obesus*
Northern Sagebrush Lizard	*Sceloporus graciosus graciosus*
Desert Side-blotched Lizard	*Uta Stanssburiana steijnegeri*
Great Basin Western Whiptail	*Cnemidophorus tigris tigris*
Western Blind Snake	*Leptotyphlops humilis*
Desert Rosy Boa	*Lichanura trivirgata gracia*
Western Shovel-nosed Snake	*Chionactis occipitalis*
Desert Night Snake	*Hypsiglena torquata deserticola*
Red Coachwhip	*Masticophis flagellum piceus*
California Kingsnake	*Lampropeltis getulus californiae*
Desert Striped Whipsnake	*Masticophis taeniatus taeniatus*
Western Spotted Leaf-nosed Snake	*Phuyllorhynchus decurtatus perkinsi*
Great Basin Gopher Snake	*Pitouphis melanoleucus deserticola*
Western Long-nosed Snake	*Rhinocheilus lecontei lecontei*
Majove Patch-nosed Snake	*Salvadora hexalepis mojavensis*
Ground Snake	*Sonora semiannulata*
Western Black-headed Snake	*Tantilla planciceps utahensis*
Mojave Desert Sidewinder	*Crotalus cerastes cerastes*
Panamint Speckled Rattlesnake	*Crotalus mitchelli stephensi*
Mojave Rattlesnake	*Crotalus scutulatus*

The most easily observable form of animal life in the project area are birds. The marginal springs, shallow ponds from the interior wells and standing water following rainfall events all support a varied collection of shore and water birds. A few small passerine and ground living birds have also been identified around the lake margins, but not in the quantities of the wetland birds.

Birds actually seen and identified on the lake bed or around the margins over the last few years include:

Eared Grebe	*Podiceps nigricolis*
American White Pelican	*Pelecanus ereythrorhynchos*
Snowy Egret	*Egretta thula*
Green-winged Teal	*Anas carolinensis*
Mallard	*Anas platyrhynchos*
Northern Pintail	*Anas acuta*
Cinnamon Teal	*Anas cyanaoptera*
Lesser Scaup	*Aythya affinis*
Old Squaw	*Clangula hyemalis*
Ruddy Duck	*Oxyura Jamaicensis*
Turkey Vulture	*Cathartes aura*
Northern Harrier	*Circus cyaneus*
Gambel's Quail	*Lophortyx gambellii*
American Coot	*Fulica americana*
Western Snowy Plover	*Charadrius alexandrinus nivosus*
Killdeer	*Charadrius vociferus*
Black-necked Stilt	*Himantopus mexicanus*
American Avocet	*Recurvirostra americana*
Lesser Yellowlegs	*Totanus flavipes*
Willet	*Catoptrophorus semipalmatus*
Spotted Sandpiper	*Actitis macularia*
Western Sandpiper	*Calidris mauri*
Wilson's Phalarope	*Phalaropus tricolor*
Red-necked Phalarope	*Phalaropus lobatus*
California Gull	*Larus califonicus*
Common Poorwill	*Phalaenoptilus nuttallii*
Common Raven	*Corvus corax*
Sage Thrasher	*Oreoscoptes montanus*
Green-tailed Towhee	*Pipilo chlorurus*
Black-chinned Sparrow	*Spizella atrogularis*
Black-throated Sparrow	*Amphispeza bilineata*
Sage Sparrow	*Amphispiza belli*
House Finch	*Carpodacus mexicanus*
Horned lark	*Eremophila alpestris*
American kestrel	*Falco sparverius*

Several other sandpiper-type birds pass through the area, as well as gull, duck, hawk and falcon species which may be occasional visitors.

The bird of most interest in the project area is the Western Snowy Plover (*Charadrius alexandrinus nivosus*), discussed below, under "Sensitive Animals".

Information on mammals is scanty. One major study of rodents and their habitats, done by Matson in 1976 around the lake bed margins found signs of Antelope Ground Squirrels (*Ammospermophilus leucurus*) and pocket gophers (*Thomomys bottae operarius* and *T. b. perpes*) and live-trapped *Perognathus longimembris, Peromyscus crinitus, Perognathus formosus, Peromyscus boylii Dipodomys microps, Onychomys torridus, Dipodomys deserti, Neotoma lepida, Mus musculus,* Mojave Panamint Kangaroo Rats (*Dipodomys panamintinus mohavensis*), Merriam's Kangaroo Rats (*Dipodomys merriami*), Western Harvest Mice (*Reithrodontomys megalotis*) and deer mice (*Peromyscus maniculatus*). Generally, population densities were low to very low even after some high precipitation years, indicating that the habitat for these species is only marginal.

In a 1990 survey done by a Great Basin biologist for a previous project on the southern and eastern shoreline area, fewer species and lower counts were found. *Ammospermophilus leucurus, Dipodomys merriami, Dipodomys panamintius, Perognathus longimembris, Persmyscus maniculatus,* and possibly *Dipodomys ordii* were identified.

Where there are rodents, there are usually predators, and the lake margins are no exception, although the densities are probably low, due to the small prey population. Coyote (*Canis Latrans*) is often seen by GBUAPCD staff and Bobcat (*Lynx rufus*) has been occasionally seen at the northern and eastern portions of the lake, while Gray Fox (*Urocyon cinereoargenteus*) and Kit Fox (*Vulpes macrotis*) have been seen at the southern end of the lake. Feral cats also prey on the local rodent population. Skunks, badgers, and several types of bats should be present, but are not documented.

Most of the area's mammal species are either cryptic, nocturnal or present only in an area during certain seasons of the year. Thus field surveys must be rigorous to reveal the real numbers and types of animals present at a given site. With only the one survey previously mentioned, and some recent work done in conjunction with previous projects, data are scarce on the local mammal population.

The northern end of the lake, around the Owens River, is identified by the BLM as an important Tule elk (*Cervus elaphus nannodes*) calving area. Tule elk also range around the northwest lake margins, and are often seen by GBUAPCD staff on the lake bed itself in the area of the Owens River delta.

Sensitive Animals

From current NDDB records and the digitized data base maintained by the Bureau of Land Management for their Bishop Resources Management Plant program, the following sensitive animal species have been identified as potentially being in the project area.

1. Owens dune weevil (*Trigonoscuta owensi*)
   Federal candidate 2
   Habitat: Stabilized sand dunes

2. Owens Pupfish (*Cyprinodon radiosus*)
   State and Federal Endangered
   Habitat: Shallow water habitats in the Owens Valley; warm , clear, shallow water free of exotic fishes; need firm substrate for spawning.

3. Owens Tui Chub (*Gila bicolor snyderi*)
   State and Federal Endangered
   Habitat: Endemic to the Owens River Basin in variety of habitats; need clear, clean water adequate cover, aquatic vegetation.

4. Western Snowy Plover (*Charadrius alexandrinus nivosus*)
   California species of Special Concern
   Habitat (Interior population): Sandy or gravelly substrate for nesting, near shore of alkaline lakes.

   *Note - The Pacific Coast population of the Western Snowy Plover is proposed for Federal Threatened status, but this does not apply to the interior population.

5. Owens Valley California Vole (*Microtus californicus vallicola*)
   Federal candidate 2; California Species of Special Concern
   Habitat: Wetlands and lush grassy ground in Owens Valley; needs friable soil for burrowing; clips grass for runways.

The Owens dune weevil is reportedly known from several locations in dune areas on the northeastern shore of Owens Lake, near Swansea. Other dune areas on the northern shore and around the east side to south of Keeler have been mapped by the BLM as potential habitat for this species. As all these dunes are over 5 miles away from any areas impacted by the proposed project, there will be no impact on any dune weevil habitat.

The Western Snowy Plover is known to nest at Owens Lake. Owens Lake and Mono Lake are the two most important breeding areas for the Plover in California, with Owens Lake having a larger population in surveys done in the 1970's, and Mono Lake having the larger population in surveys done since the mid-1980's. The Plover is a ground-nesting wading bird. It nests on the ground in a shallow scrape, which is well camouflaged by its small size and the light colored birds. Ravens are the most important predators, both of eggs and nestlings. The adults and young feed on brine flies and their larvae.

Male Snowy Plovers begin arriving in March, and start to establish breeding territories. If forced to move, it is likely they will abandon breeding for that season. The young become independent enough to leave the nesting site by mid- to late September. Observations by GBUAPCD staff trained in recognition of the Plover nesting sites have found them on all parts of the lake during their breeding season.

The Owens Tui Chub and Owens Pupfish are not known to occur in any of the springs or ponds within Owens Lake, and survive only in a few locations. As there is no existing open water on or near the proposed project area, there could be no impact to these species.

The Owens Valley California Vole occurs in meadow habitats. It has been identified in pasture lands in the southwest shore zone of the lake. As all construction will take place on unvegetated areas of the lake bed, there will be no impacts to potential vole habitats.

In addition to the above, there has been a single recorded sighting of the Mohave Ground Squirrel (Spermophilus mohavensis), a State and Federal endangered species, for a location near Olancha, south of Owens Lake. This would be a major extension of its range from the Mojave Desert, its currently known distribution. It is extremely unlikely that this species would be encountered by the proposed project.

Noise and Visual Resources

Unbroken vistas and silence, except for the wind, are the natural conditions of the site. The lake bed is almost perfectly flat, and the only visual relief is provided by a trona mining operation and its associated equipment on the western margins of the lake bed. The mining operation is also the only source of noise. The potential receptors, however, are the small town of Keeler, approximately 10 miles across the lake bed to the northeast, and Highway 395, approximately 3 miles to the west.

Light and Glare

The sources of light near the project are natural. None come from the mining operations as they are not conducted at night.

Land Use

The mining operation currently exists on the lake bed. There is some cattle grazing along the historic shoreline and in the Owens River delta. The nature of the lake bed surface will prevent agricultural or developmental uses.

Recreation

The lake bed provides open space and recreational uses such as hunting and bird watching.

Cultural Resources

There are no historic or prehistoric resources on the lake bed surface. Native Americans and early settlers did use the lake shore before the lake dried up. The margins of the lake were used extensively by Native Americans, and previous surveys have uncovered many sites with archaeological significance. Owens Lake has been used by man for hunting, boating and food supplies such as brine fly larvae and shellfish. All sites discovered so far are above the 3590 fasl contour, just above the late prehistoric shore line. This level can be taken as a threshold, and projects below this line are highly unlikely to encounter sites of significance. The proposed wells are located at an elevation of approximately 3565 fasl or 25 feet below the prehistoric shoreline.

REFERENCES

California State Lands Commission, Sacramento, California. "Negative Declaration No. 587 - Proposed Dust Remediation Pilot Program - Owens Lake." May 5, 1992.

Great Basin Unified Air Pollution Control District, Bishop, California. "Owens Valley PM-10 Planning Area Best Available Control Measures State Implementation Plan." June 29, 1994.

Great Basin Unified Air Pollution Control District, Bishop, California. "State Implementation Plan and Negative Declaration/Initial Study for Owens Valley PM-10 Planning Area." December, 1988.

Los Angeles Department of Water and Power, Los Angeles, California. Letter and enclosure from Henry R. Venegas to Ellen Hardebeck regarding comments on draft negative declaration for 1994-1995 Owens Dry Lake Groundwater Well Program. September 8, 1994.

Saint-Amand, Pierre, et al. "Dust Storms from Owens and Mono Valleys, California." Report prepared for China Lake Naval Weapons Center, China Lake, California (Report No. NWC TP 6731). September 1986.

Environmental Checklist Form

Title of Proposal: 1994-1995 Owens Dry Lake Groundwater Well Program

Date Checklist Submitted: August 1, 1994

Agency Requiring Checklist: Great Basin Unified Air Pollution Control District

Agency Address: 157 Short Street

City/State/Zip: Bishop, California 93514

Agency Contact: Theodore D. Schade **Phone:** (619) 872-8211

PROJECT LOCATION: Owens Dry Lake, approx. 5 miles west of Keeler, Inyo County

PROJECT ADDRESS: None

DESCRIPTION OF PROJECT: Two groundwater well sites. See attached Initial Study.

Environmental Impacts:

	Yes	*Maybe*	*No*
I. EARTH. *Will the proposal result in:*			
a) Unstable earth conditions or in changes in geologic substructures?	☐	☐	☒
b) Disruptions, displacements, compaction or overcovering of the soil?	☒	☐	☐
c) Change in topography or ground surface relief features?	☒	☐	☐
d) The destruction, covering or modification of any unique geologic or physical features?	☐	☐	☒
e) Any increase in wind or water erosion of soils, either on or off the site?	☐	☒	☐
f) Changes in deposition or erosion of beachsands, or changes in siltation, deposition or erosion whichmay modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	☐	☐	☒
g) Exposure of people or property to geologic hazards, such as earthquakes, landslides, mudslides, ground failure, or similar hazards?	☐	☐	☒

	Yes	Maybe	No
II. AIR. *Will the proposal result in:*			
a) Substantial air emissions or deterioration of ambient air quality?	☐	☐	☒
b) The creation of objectionable odors?	☐	☐	☒
c) Alteration of air movement, moisture, or temperature, or any change in climate, either locally or regionally?	☐	☐	☒
III. WATER. *Will the proposal result in:*			
a) Changes in currents, or the course of direction of water movements, in either marine or freshwaters?	☐	☐	☒
b) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	☐	☐	☒
c) Alterations to the course or flow of flood waters?	☐	☐	☒
d) Changes in the amount of surface water in any water body?	☐	☐	☒
e) Discharge into surface waters, or in any alteration of surface water quality, including, but not limited to, temperature, dissolved oxygen or turbidity?	☐	☐	☒
f) Alteration of the direction or rate of flow of ground waters?	☐	☒	☐
g) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	☐	☒	☐
h) Substantial reduction in the amount of water otherwise available for public water supplies?	☐	☐	☒
i) Exposure of people or property to water related hazards such as flooding or tidal waves?	☐	☐	☒
IV. PLANT LIFE. *Will the proposal result in:*			
a) Change in the diversity of species, or number or any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	☐	☐	☒
b) Reduction of the numbers of any unique, rare, or endangered species of plants?	☐	☐	☒
c) Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	☐	☐	☒
d) Reduction in acreage of any agricultural crop?	☐	☐	☒
V. ANIMAL LIFE. *Will the proposal result in:*			
a) Change in the diversity of species, or numbers of any species of animals (birds; land animals, including reptiles; fish and shellfish, benthic organisms or insects)?	☐	☐	☒
b) Reduction of the numbers of any unique, rare, or endangered species or animals?	☐	☒	☐
c) Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	☐	☐	☒
d) Deterioration to existing fish or wildlife habitat?	☐	☐	☒
VI. NOISE. *Will the proposal result in:*			
a) Increases in existing noise levels?	☐	☐	☒
b) Exposure of people to severe noise levels?	☐	☐	☒
VII. LIGHT and GLARE. *Will the proposal:*			
a) Produce new light or glare?	☐	☐	☒

	Yes	Maybe	No
VIII. LAND USE. *Will the proposal result in:*			
a) Substantial alteration of the present or planned land use of an area?	☐	☐	☒
IX. NATURAL RESOURCES. *Will the proposal result in:*			
a) Increase in the rate of use of any natural resources?	☐	☐	☒
X. RISK OF UPSET. *Will the proposal involve:*			
a) A risk of an explosion or the release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation) in the event of an accident or upset conditions?	☐	☐	☒
b) Possible interference with an emergency response plan or an emergency evacuation plan?	☐	☐	☒
XI. POPULATION. *Will the proposal:*			
a) Alter the location, distribution, density or growth rate of the human population of an area?	☐	☐	☒
XII. HOUSING. *Will the proposal:*			
a) Affect existing housing, or create a demand for additional housing?	☐	☐	☒
XIII. TRANSPORTATION/CIRCULATION. *Will the proposal result in:*			
a) Generation of substantial additional vehicular movement?	☐	☐	☒
b) Effects on existing parking facilities, or demand for new parking?	☐	☐	☒
c) Substantial impact upon existing transportation systems?	☐	☐	☒
d) Alterations to present patterns of circulation or movement of people and/or goods?	☐	☐	☒
e) Alterations to waterborne, rail or air traffic?	☐	☐	☒
f) Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?	☐	☐	☒
XIV. PUBLIC SERVICES. *Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:*			
a) Fire protection?	☐	☐	☒
b) Police protection?	☐	☐	☒
c) Schools?	☐	☐	☒
d) Parks or other recreational facilities?	☐	☐	☒
e) Maintenance of public facilities, including roads?	☐	☐	☒
f) Other governmental services?	☐	☐	☒
XV. ENERGY. *Will the proposal result in:*			
a) Use of substantial amounts of fuel or energy?	☐	☐	☒
b) Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	☐	☐	☒

	Yes	Maybe	No
XVI. UTILITIES and SERVICE SYSTEMS. *Will the proposal result in a need for new systems, or substantial alterations to the following utilities:*			
a) Power or natural gas?	☐	☐	☒
b) Communications systems?	☐	☐	☒
c) Water?	☐	☐	☒
d) Sewer or septic tanks?	☐	☐	☒
e) Storm water drainage?	☐	☐	☒
f) Solid waste and disposal?	☐	☐	☒
XVII. HUMAN HEALTH. *Will the proposal result in:*			
a) Creation of any health hazard or potential health hazard (excluding mental health)?	☐	☐	☒
b) Exposure of people to potential health hazards?	☐	☐	☒
XVIII. AESTHETICS. *Will the proposal result in:*			
a) The obstruction of any scenic vista or view open to the public?	☐	☐	☒
b) The creation of an aesthetically offensive site open to public view?	☐	☐	☒
XIX. RECREATION. *Will the proposal result in:*			
a) Impact upon the quality or quantity of existing recreational opportunities?	☐	☐	☒
XX. CULTURAL RESOURCES. *Will the proposal:*			
a) Result in the alteration of or the destruction of a prehistoric or historic archaeological site?	☐	☐	☒
b) Result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object?	☐	☐	☒
c) Have the potential to cause a physical change which would affect unique ethnic cultural values?	☐	☐	☒
d) Restrict existing religious or sacred uses within the potential impact area?	☐	☐	☒
XXI. MANDATORY FINDINGS OF SIGNIFICANCE.			
a) **Potential to degrade:** Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒
b) **Short-term:** Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively, brief, definitive period of time. Long-term impacts will endure well into the future.)	☐	☐	☒
c) **Cumulative:** Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect on the total of those impacts on the environment is significant.)	☐	☐	☒
d) **Substantial adverse:** Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒

XXII. DISCUSSION OF ENVIRONMENTAL EVALUATION.

See attached explanation of Environmental Checklist items.

XXIII. DISCUSSION OF LAND USE IMPACTS.

See attached explanation of Environmental Checklist items.

XXIV. DETERMINATION.

On the basis of this initial evaluation:

a) I find that the proposed project *could not* have a significant effect on the environment, and

A NEGATIVE DECLARATION will be prepared ..... ☐

b) I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the *mitigation* measures described on an attached sheet have been added to the project.

A NEGATIVE DECLARATION will be prepared ..... ☒

c) I find the proposed project *may* have a significant effect on the environment, and

An ENVIRONMENTAL IMPACT REPORT is required ..... ☐

Ellen Hardebeck
Signature

Ellen Hardebeck
Print Name

Great Basin U.A.P.C.D.
For

August 4, 1994
Date

EXPLANATION OF ENVIRONMENTAL CHECKLIST FORM ITEMS
1994-95 OWENS DRY LAKE GROUNDWATER WELL PROGRAM

I. EARTH

a) The project will not result in any unstable earth conditions or changes in geologic substructures. The wells are being installed in order to ascertain existing geologic conditions.

b) Earth grading will take place at each well site. Due to the soft lake bed soils present at the site and the potential for elevated groundwater levels, a raised working pad will be graded to provide support for construction equipment. Each of the well pads will be approximately 150 feet square by 2 feet high and will be constructed of imported material. Each site will also have a temporary excavation for a water pond to be used for storage of drilling process water. The ponds will be approximately 80 feet in diameter and 6 feet deep. The ponds will be backfilled upon completion of the well installation.

c) The grading for the well pads described in I.b) above will change the topography of the lake bed. The change is minor, however, as the pads will only be 2 feet high. The grading for the temporary ponds will change to topography of the lake bed only during construction.

d) While the lake bed itself is a unique geologic feature, the proposed project will not result in any significant changes to the overall surface.

e) During the 3- and 90- day aquifer tests, water will be discharged from the wells and onto the lake bed. During this time there may be the potential for some minor soil erosion. However, due to the extremely flat relief of the lake bed, water velocities will be very low and therefore, the potential for soil erosion will be small.

f) No beach or river sands or channels exist in the project area.

g) The project is taking place in a seismically active area; however, this project will not expose people or property to geologic hazards beyond existing levels.

II. AIR

a) This project will not result in any significant additional air emissions. Only a small number of vehicles will be in use at any one time. The

proposed project is one element of the effort to develop a control strategy for the largest single source of fugitive dust air pollution in the country.

b) This project will not release any odors.

c) The project will not alter air movement, moisture or temperature, nor will it contribute to changes in local or regional climate.

III. WATER

a) No alterations to any surface water currents are proposed by this project. Temporary ponds will be created on the lake bed during construction and during short term aquifer testing.

b) Surface runoff will be slightly and temporarily increased during the short term aquifer testing. However, due to the remote and desolate nature of the site, this runoff will have no impacts.

c) See III.b) above.

d) The project will not use any surface water but will temporarily be a source of minor additional discharges onto the lake bed during construction and testing.

e) See III.e) above.

f) One of the primary purposes of the project is to measure the characteristics of the groundwater aquifers below the lake bed in order to develop a greater understanding of the area's water resources. This is necessary so that future water use on the lake bed to control fugitive dust emissions does not adversely impact existing water uses. Since all water use for this project is short term and involves the use of relatively small amounts of low quality groundwater, the impact on the local and regional groundwater aquifers is expected to be insignificant.

g) See III.f) above. If each of the wells has a natural artesian flow of 400 gallons per minute, then the 93 days of flow testing (a 3-day test and a 90-day test) will utilize approximately 165 acre-feet from each well.

h) The GBUAPCD has groundwater monitoring wells throughout the lake bed area and will monitor these wells during the aquifer tests to ensure that there are no impacts on local surface water or groundwater supplies. If the monitoring wells should indicate that adverse impacts

are occurring, all testing will cease. All previous aquifer testing has apparently not caused local impacts to the near surface groundwater systems.

i) The project is taking place in an area that is naturally subject to flash flooding; however, this project will not expose people or property to water related hazards beyond existing levels.

IV. PLANT LIFE

a) The proposed well sites are completely devoid of any plant life. The existing access routes to the well sites are also devoid of plants. The natural salts in the soil presently preclude the establishment of plants on these portions of the lake bed. The proposed project will not introduce any new plants to the area.

b) See IV.a) above.

c) See IV.a) above.

d) See IV.a) above.

V. ANIMAL LIFE

a) No significant adverse impacts to wildlife are expected. Construction and maintenance personnel will be instructed to use only designated routes and to avoid disturbance to any wildlife encountered while in route to or at the well sites.

b) The Owens dune weevil (*Trigonoscuta owensi*) is reported to be known in dune areas above the northeastern shore of Owens Lake, near Swansea. Other dune areas on the northern shore and around the east side to the south of Keeler have been mapped by the Bureau of Land Management as potential habitat for this species. The project sites and their access routes avoid any disturbances to sand dune areas. Construction and maintenance personnel will be instructed to use only designated routes, thus avoiding impacts to the dune weevil.

The Owens Tui Chub (*Gila bicolor snyderi*) and the Owens Pupfish (*Cyprinodon radiosus*) are not known to occur in any of the springs or ponds on Owens Lake. The proposed project will not affect springs on and around the lake bed that could be considered as potential sites for transplanting these fish in the future.

The Western Snowy Plover (*Charadrius alexandrinus nivosus*) is known to nest on all parts of Owens Lake. Male plovers begin arriving in March and start establishing breeding territories. If forced to move, they may abandon breeding for that season. The young become independent enough to leave the nesting site by mid- to late September. The breeding season should be complete by the time well construction begins on the lake bed in mid-October and construction will be complete before nesting begins again in the Spring (see project schedule in Figure 2).

Even though the potential for the proposed project to impact Snowy Plovers is small, as with other activities carried out by GBUAPCD on the lake bed, trained survey staff will survey construction sites prior to the start of any on-lake activity. This preconstruction survey and the fact that the project is impacting a very small amount of the lake bed, will ensure that the project has an insignificant impact on the Snowy Plovers.

The Owens Valley Vole (*Microtus californicus vallicola*) occurs in meadow habitats. It has been identified in pasture lands in the southwest shore zone of the lake. As all activities associated with this project will occur on unvegetated areas of the lake bed, there is no potential for impacting vole habitat.

c) No new species will be introduced into the area.

d) The amount of lake bed being altered by the project is small (about 1¼ acres) and the existing lake bed habitat is hostile to most animal life. Therefore, the deterioration of habitat caused by the project is insignificant.

VI. NOISE

a) This project will not generate significant additional noise. Well drilling operations will cause noise generation during daylight hours, but the nearest residents are in Keeler, 2 to 5 miles away; too far for any noticeable effect.

b) On-site well drilling noise levels may be high. Construction personnel subjected to high noise levels will be required to wear hearing protection.

VII. LIGHT AND GLARE

a) The proposed project will not result in any nighttime lighting. All operations will take place during daylight hours.

VIII. LAND USE

a) No alteration of land use is proposed by or will result from this project.

IX. NATURAL RESOURCES

a) Flow testing of the wells may temporarily increase the rate of renewable natural resource use. Water will be extracted from the encountered aquifers in order to test the aquifer properties. This extraction may or may not be in excess of natural replenishment rates, as the replenishment rate is unknown. The project will not deplete any nonrenewable natural resource.

X. RISK OF UPSET

a) The proposed project does not pose any risk of upset.

b) The proposed project will not interfere with any emergency response plan as none exists for the area. This is because the project site is without population or facilities subject to such a plan.

XI. POPULATION

a) The proposed project will not affect the area's population characteristics since it does not propose any changes to existing personnel involved in current GBUAPCD operations.

XII. HOUSING

a) As the project will not bring any new, permanent residents into the area, it will not generate any demand for housing.

XIII. TRANSPORTATION/CIRCULATION

a) The proposed project will not generate substantial additional vehicular movements.

b) The proposed project will not generate any additional parking demands.

c) See XIII.a) above.

d) The proposed project will not alter present patterns of circulation.

e) See XIII.d) above.

f) The proposed project will not increase any traffic hazards.

XIV. PUBLIC SERVICES

a) The proposed project will not affect fire protection services as it is located on the dry lake bed, which is devoid of any flammable materials.

b) The proposed project will not affect police protection services above present levels.

c) The proposed project will not additionally affect schools as it will not add any population to the area.

d) The proposed project will not additionally affect park and recreation facilities as it will not add any population to the area.

e) As the GBUAPCD maintains all roads on the lake bed, the proposed project will not require any additional maintenance of public facilities.

f) The proposed project will not additionally affect any other governmental services.

XV. ENERGY

a) The proposed project will not use any substantial amounts of fuel or energy.

b) The proposed project will not result in any increase in demand upon existing sources of energy, nor will it require the development of new sources of energy.

XVI. UTILITIES AND SERVICE SYSTEMS

a) The proposed project will not use any electric power or natural gas.

b) Normal radio and telephone communications systems, presently in use, will continue at existing levels.

c) The proposed project will not use any public water systems.

d) The project will not use public sewer systems. On-site personnel will use portable toilets.

e) The proposed project will not affect storm water drainage.

f) The project will not generate any solid waste above existing levels. Construction debris will be taken by the contractor to the county dump in Lone Pine.

XVII. HUMAN HEALTH

a) The project will not create any potential human health hazards.

b) All personnel working on Owens Lake are subject to the possibility of being exposed to elevated levels of fugitive dust. However, GBUAPCD policies require that all on-lake personnel carry eye protection and dust filtering respirators and that they leave the lake bed if a dust storm should arise. These safety procedures minimize the health hazards involved with working on Owens Lake.

XVIII. AESTHETICS

a) The proposed well sites are between 2 and 5 miles from the nearest public roads and private properties. The scale of the well sites in proportion to the scale of the lake bed makes the aesthetic impact of the proposed project insignificant.

b) The proposed project site has a low aesthetic impact as it will consist of two flat graded pads and between two and four well heads and, as was discussed in XVIII.a) above, it is remote from public views.

XIX. RECREATION

a) The proposed project will take place on a remote area of Owens Lake that, while open to public recreation use, receives very little to no use because of the desolate and sometimes dangerous nature of the area. Therefore, public recreation uses will not be impacted.

XX. CULTURAL RESOURCES

a) No historic or prehistoric sites have ever been identified on the bed of Owens Lake. All identified cultural resources have been limited to the

former shorelines of the lake which lie above the 3590 fasl contour line. All construction associated with the proposed project will take place at approximately 3565 fasl or 25 feet below the 3590 fasl contour line.

b) The proposed project will not affect any historic or prehistoric buildings, structures or objects.

c) The proposed project does not have any potential to cause physical changes that would affect any unique ethnic cultural values.

d) The proposed project will not restrict existing religious or sacred uses within the project area.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

a) The project will not degrade the environment in any significant way. The construction of the wells is part of a small-scale pilot project to test the feasibility of using water to prevent dust emissions from Owens Lake. During the potential 93 days of pump testing, the proposed project has the potential to temporarily enhance the public trust values of the lake bed.

b) The proposed project will not have any significant short-term negative environmental effects. The results of the mitigation measure pilot testing will be used by the agencies involved with solving the fugitive dust problem to decide on a long-term mitigation plan. This larger scale project will require further environmental impact analysis and documentation.

c) There is a possibility of another project being undertaken within the relative time frame of the proposed project. There is currently an Environmental Impact Report being circulated for comment that addresses the proposed expansion of the evaporite mining operations currently taking place on the western portion of the lake bed. These operations are proposed to take place on public lands managed by the California State Lands Commission. The County of Inyo is the Lead Agency for purposes of CEQA.

Future projects may utilize water from the wells proposed for construction. These projects will be subject to CEQA and any environmental impacts associated with the use of water from the wells will be addressed at that time.

d) The proposed project will not have any environmental effects that will cause adverse effects on human beings, either directly or indirectly, as discussed in the preceding sections.

MITIGATION MONITORING FOR POTENTIAL PROJECT IMPACTS 1994-95 OWENS DRY LAKE GROUNDWATER WELL PROGRAM

IMPACT: Potential impacts to sensitive animal species caused by travel, grading and construction on Owens Lake bed.

PROJECT MODIFICATIONS:

1. Access routes to each well site will be surveyed for sensitive animal species in advance by a qualified biologist. If, during the course of the biological survey, any occurrence of sensitive animals is discovered, the Bishop office of the California Department of Fish and game will be notified. The California Natural Diversity Data Base will also be notified of all sensitive species encountered during the project.

2. Access routes and construction sites will be selected which avoid disturbance to sensitive animals and their habitats. All travel will be along existing roadways. All personnel accessing the sites will be instructed to utilize only designated roadways.

3. All personnel accessing the sites will be instructed to avoid any direct disturbance to wildlife encountered while on the lake bed. Personnel will be briefed on Western Snowy Plover presence and instructed to avoid disturbing individuals.

4. All construction operations will take place between October 1 and March 31 in order to avoid conflicts with the Western Snowy Plover breeding season.

5. Grading operations will be limited to as small an area as possible in order to minimize disturbance to the lake bed.

MONITORING:

GBUAPCD personnel will be responsible for the implementation of all project modifications.

NOTICE OF DETERMINATION

TO: County Clerk
Inyo County
Independence, California 93526

FROM: Great Basin Unified A.P.C.D.
157 Short Street
Bishop, California 93514

SUBJECT: Filing of Notice of Determination in compliance with Section 21152 of the Public Resources Code.

Project Title: 1994-1995 Owens Dry Lake Groundwater Well Program

SCH No.: 94082021

Contact Person: Theodore D. Schade Telephone: 619-872-8211

Project Location: Owens Dry Lake, Inyo County

Project Description: Two groundwater well sites part of the research program to reduce dust emissions from the bed of Owens Dry Lake.

This is to advise that on October 5, 1994 the Great Basin Unified Air Pollution Control District, acting as the lead agency, has, on the basis of the Initial Study and public comments received, made the following findings regarding the above project:

1. A Negative Declaration was prepared and circulated for this project pursuant to the provisions of the California Environmental Quality Act.
2. Mitigation measures were made a condition of the approval of the project.
3. The project will not have a significant effect on the environment.
4. The Negative Declaration is hereby certified.
5. The proposed project is hereby approved.

This is to certify that the final Negative Declaration with comments and responses and record of project approval is available to the general public at:

Great Basin Unified Air Pollution Control District
157 Short Street
Bishop, California 93514

Date received for filing and posting:_____

_____

Board Chairman - C. Ann Wade
Great Basin Unified Air Pollution Control District

Date: October 5, 1994

negdec.wel

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COMMENTS RECEIVED ON DRAFT DOCUMENT
and
STAFF RESPONSES

Department of Water and Power the City of Los Angeles

RICHARD J. RIORDAN
Mayor

Commission
DENNIS A. TITO, *President*
CONSTANCE L. RICE, *Vice President*
JOSÉ DE JESÚS LEGASPI
JUDY M. MILLER
MARCIA F. VOLPERT
JUDITH K. KASNER, *Secretary*

WILLIAM R. McCARLEY, *General Manager*
KENNETH S. MIYOSHI, *Assistant General Manager and Chief Engineer*
ELDON A. COTTON, *Assistant General Manager—Power*
JAMES F. WICKSER, *Assistant General Manager—Water*
PHYLLIS E. CURRIE, *Chief Financial Officer*

September 8, 1994

Ms. Ellen Hardebeck
Air Pollution Control Officer
Great Basin Unified Air Pollution
Control District
157 Short Street, Suite 6
Bishop, California 93514

Dear Ms. Hardebeck:

Draft Initial Study and Negative Declaration for
1994-1995 Owens Dry Lake Groundwater Well Program

This is in regard to the Great Basin Unified Air Pollution Control District's Draft Initial Study and Negative Declaration for 1994-1995 Owens Dry Lake Groundwater Well Program dated August 1994. The Los Angeles Department of Water and Power (Department) has reviewed the document and feels that the Environmental Setting portion of the Initial Study does not provide an adequate discussion of the desiccation of Owens Lake. The desiccated condition of the lake is the reason the project is being proposed, therefore a substantive discussion of this subject should be an essential part of the document.

The Initial Study indicates only that the City of Los Angeles diverted water from the Owens River and that Owens Lake dried up because there was no water in the river. This brief discussion of the desiccation of Owens Lake fails to present an objective description of the desiccation process and tends to bias the reader's understanding of the Owens Lake dust problem and the proposed project at the expense of the City. Other well-known factors besides the City's water diversions were involved in the desiccation process and these should be discussed in the Initial Study as well. The absence of such a discussion deprives the reader of information necessary to the development of an informed understanding of the proposed project.

Water and Power Commission
111 North Hope Street, Los Angeles, California ☐ *Mailing address:* Box 111, Los Angeles 90051-0100
Telephone: (213) 367-4211 *Cable address:* DEWAPOLA *FAX:* (213) 367-3287

The Department's detailed comments regarding this subject are enclosed.

If you have any questions regarding these comments or wish additional information or assistance please call Mr. Raymond Prittie on (213) 367-1031.

Sincerely,

HENRY R. VENEGAS
Engineer in Charge
Los Angeles Aqueduct Division

Enclosure

c: w/Enclosure
Mr. Raymond R. Prittie

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Comments Provided by the Los Angeles Department of Water and Power Regarding the Initial Study (IS) and Negative Declaration for 1994-1995 Owens Dry Lake Groundwater Well Program Date August 1994

The Environmental Setting portion of the IS provides an inadequate discussion of the desiccation of Owens Lake.

One of the most important aspects of the Environmental Setting, as it relates to the project, is the desiccation of Owens Lake. If the lake had not dried up there would be no need for the proposed project. The IS devotes only three lines to this subject.

The IS (citing a 1986 study conducted by Pierre Saint-Amand et al for the China Lake Naval Weapons Center) mentions only that the City of Los Angeles (City) completed its aqueduct in 1913 to divert water from the Owens River and that the lake became virtually dry by 1930 because its primary water supply, the Owens River, was gone. This is an extremely abbreviated discussion for such an important topic. Although these statements are factually correct, the context in which they are placed can mislead the reader because so much other information on the desiccation of the lake is left out.

It is well known that the desiccation of Owens Lake is a much more complex subject than the above discussion would indicate. The IS's treatment is overly simplistic and fails to include information necessary to enable the average reader to evaluate the proposed project in a balanced and objective manner.

It is widely recognized that three major processes were involved in the lake's desiccation; natural climate change, diversion of water for use in the Owens Valley, and diversions by the City. The 1986 Saint-Amand study, cited in the IS as the document's source of information on the desiccation of the lake, as well as many other sources, provide a wealth of information on the subject which was not included in the IS. Inclusion of this information is essential to the reader's understanding of the Owens Lake dust problem; a prerequisite to understanding the proposed project.

A more complete discussion of the drying of Owens Lake, taken directly from the same 1986 Saint-Amand study cited by the IS, is presented below.

> Although Owens Lake probably dried up in hot, dry, interglacial periods, well cores do not indicate that any <u>extensive</u> (emphasis added) salt bodies are buried in the sediments. The latest desiccation was initiated by a natural climatic change and accelerated by local irrigation and by export of water [to Los Angeles] . . . .Farmers withdrew irrigation water from Owens River and subsidiary streams. Over 40,000 acres were extravagantly irrigated. By 1904 some 297,000 acre-feet were being diverted with an

> average depth of application of 7.5 feet per year (Lee 1906, p. 23) leaving about 65,000 acre-feet to flow to the lake. The equilibrium requirements for evaporation for the 110-square-mile lake would be at least 350,000 acre-feet per year depending on weather. A good deal more land was placed in pasturage, which, although not irrigated, used more water than the native xerophytes and thus added to the water burden. . . .The local consumptive use of water exceeded the evaporative demands of Owens Lake and eventually desiccated the lake during periods of drought, even before (emphasis added) the export of water (1913) to Los Angeles. . . . The situation in Owens Lake, originally created by local irrigation projects and aggravated by export of water to the City of Los Angeles, would have developed in any case with the passage of time as the climate continued to dry.

In addition to the excellent Saint-Amand study and a number of other published references, other sources also exist which provide information which would be very helpful to the reader. Published survey data is one such source. It allows for comparison of historic and current lake level elevations; an excellent means of putting the current condition of Owens Lake into an historical perspective.

The IS indicates that the current lake level elevation varies from between 3,555 feet above sea level (fasl) to 3,600 fasl (datum unknown). Yet data from a combination of surveys of the lake conducted by the United States Geological Surveys, private development companies, and the City of Los Angeles indicates that the level of the lake had already fallen from a high of 3,597 fasl (USGS datum) recorded in 1872 to 3,563.5 fasl (USGS datum) in 1905, a level not much higher than the current level.

In addition to published studies and survey data, local newspaper articles of the period also provide a good historical perspective. The following are two of many examples:

> On January 3, 1889 the Inyo Register reported that water flowing back into the Owens River from irrigation ditches and agricultural land, ". . . will ultimately find its way back into the [Owens] river channel and stay for a time the drying up of Big Owens Lake."

> In an August 4, 1904 article titled "Is Owens Lake Near its End" the Inyo Register reported, "Should the rate of decrease in depth shown in the last three years continue, it will therefore be but 15 years until Owens Lake will have become a memory, its site marked possibly by no more than the semblance of a pond, and by a spread of mineral covered land".

In order to allow the reader to properly evaluate the project in an informed manner, the Environmental Setting portion of the IS should provide a discussion of all relevant factors which affect the lake, including climate and consumptive use of water in the Owens Valley. Full discussion of this subject is essential because, as previously stated, it is the desiccated condition of the lake which has created the need for the proposed project.

Ellen Hardebeck
Control Officer

GREAT BASIN AIR POLLUTION CONTROL DISTRICT

157 Short Street • Bishop, California 93514 • (619) 872-8211 • fax (619) 872-6109

September 21, 1994

Mr. Henry R. Venegas
Los Angeles Department of Water and Power
P.O. Box 111
Los Angeles, California 90051-0100

Re: Response to Comments on "Initial Study and Negative Declaration for 1994-1995 Owens Dry lake Groundwater Well Program"

Dear Mr. Venegas:

Thank you for your comments on the subject draft negative declaration. As you point out in your comments, the historic desiccation of Owens Lake is a complex subject and the Initial Study treats it only very briefly. This is because we feel that the causes and reasons for the drying of Owens Lake have little bearing or effect on the current proposed well project. While the lake's desiccation may have been caused by a number of factors, that facts remain that the lake is dry, it is a major source of air pollution and it needs to be taken care of.

The additional information you provided regarding the drying of the lake is helpful. We have modified the introductory paragraphs to the "Environmental Setting" section of the document to reflect that the lake level dropped early in this century due to drought and irrigation in the Owens Valley. The modified section is attached with the new wording shown in **bold** type and the old language shown as ~~strikeout~~.

Again, we appreciate your comments on the negative declaration and the Department's ongoing interest, involvement and support in developing a solution to the problem at Owens Lake.

Sincerely,

Theodore D. Schade
Projects Manager

Enclosure

Copy to: Mr. Raymond R. Prittie

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Environmental Setting

The proposed project area is the dry bed of Owens Lake. Owens Lake is an alkaline dry lake, or playa, in the southern end of Inyo County on the eastern side of the Sierra Nevada mountain range. The elevation of the lake bed varies between 3,550 and 3,600 feet above sea level (fasl). The lake bed extends about 17 miles north and south and 10 miles east and west and covers an area of approximately 70,000 acres. The current lake bed surface consists of eight different playa environments: salt pan, salt crust, mud flat, sand flat, dunes, delta deposits, beach deposits and spring mounds.

Saint-Amand (1986), and references cited therein, provide evidence that a lake or a series of lakes existed in the proto-Owens Valley from at least the early Pleistocene, about 1.8 million years ago. During much of this time frame, the water in the lake flowed out of the basin through Rose Valley and into China Lake. Although it is thought by many that Owens Lake probably dried up several times during the Pleistocene, two deep cores on the lake bed have failed to identify any previous episodes of complete desiccation. The high stand of the lake that produced the shorelines at an elevation of 3,880 fasl is estimated to have occurred 15,000-16,000 years ago. It is believed that from this date to the present that Owens Lake has been a continuously closed basin.

During historic times the lake has been a focus for mining interests. Silver mines on the east shore led to steam navigation on the lake, and attempts to recover valuable salts from the lake itself began in 1884. Sodium carbonate (trona) mining began to provide a major raw material for glass manufacturing. Historic ~~high~~ lake levels ~~have hovered around 3600 fasl~~ were as high as 3597 in 1872 (LADWP,1994).

Drought and extensive irrigation in the Owens Valley around the turn of the century caused the lake level to drop as low as 3564 in 1905. However, as the drought ended, by 1912 the level had risen to 3587 and remained as high as 3585 in 1917. In 1913, the City of Los Angeles completed a fresh water aqueduct system and began diverting ~~that diverted~~ the water of the Owens River south to Los Angeles. As demand increased in Los Angeles and irrigation continued (mainly on City owned property) in the Owens Valley, ~~With its primary water supply gone,~~ by 1930 Owens Lake was virtually dry; its level had dropped to 3554 fasl (St. Amand, 1986 and LADWP, 1994).

GOVERNOR'S OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO, CA 95814

September 8, 1994

THEODORE SCHADE
GREAT BASIN AIR POLUTION CONTROL DISTRICT
157 SHORT ST
BISHOP, CA 93514

Subject: 1994-1995 OWENS DRY LAKE GROUNDWATER WELL PROGRAM SCH #: 94082021

Dear THEODORE SCHADE:

The State Clearinghouse submitted the above named environmental document to selected state agencies for review. The review period is closed and none of the state agencies have comments. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call Kristen Derscheid at (916) 445-0613 if you have any questions regarding the environmental review process. When contacting the Clearinghouse in this matter, please use the eight-digit State Clearinghouse number so that we may respond promptly.

Sincerely,

Michael Chiriatti, Jr.
Chief, State Clearinghouse

SEP 14 1994

GREAT BASIN

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Mail to: State Clearinghouse, 1400 Tenth Street, Room 121, Sacramento, CA 95814 — 916/445-0613

NOTICE OF COMPLETION AND ENVIRONMENTAL DOCUMENT TRANSMITTAL FORM

For SCH Use Only
SCH #: _____

1. Project Title: 1994-1995 OWENS DRY LAKE GROUNDWATER WELL PROGRAM 94082021
2. Lead Agency: GREAT BASIN AIR POLUTION CONTROL DIST Contact Person: THEODORE D. SCHADE
2a. Street Address: 157 Short Street 2b. City: Bishop
2c. County: Inyo 2d. Zip: 93514 2e. Phone: 619-872-8211
PROJECT LOCATION 4. County: Inyo 4a. City/Community: None
4b. Assessor's Parcel No.: None 4c. Section: 32 Twp.: 17S Range: 38E
5a. Cross Streets: State Hwys 136 and 190 5b. For Rural, Nearest Community: Keeler
6. Within 2 miles: a. State Hwy #: 136 & 190 b. Airports _____ c. Railways _____ d. Waterways _____

7. PROJECT TYPE

CEQA
01. ___NOP
02. ___Early Cons
03. X Neg Dec
04. ___Draft EIR
05. ___Supplement/Subsequent EIR (Prior SCH No.: _____)

NEPA
09. ___JOI
10. ___FONSI
11. ___Draft EIS
12. ___FH

OTHER
13. ___Joint Document
14. ___Final Document
15. ___Other: _____

8. LOCAL ACTION TYPE
01. ___General Plan Update
02. ___New Element
03. ___General Plan Amendment
04. ___Master Plan
05. ___Annexation
06. ___Specific Plan
07. ___Community Plan
08. ___Redevelopment
09. ___Rezone
10. ___Land Division (Subdivision, Parcel Map, Tract Map, etc.)
11. ___Use Permit
12. ___Waste Mgmt Plan
13. ___Coastal Ag Preserve
14. X Other: Construction Contract

9. DEVELOPMENT TYPE
01. ___Residential: Units _____ Acres _____
02. ___Office: Sq. Ft. _____ Acres _____ Employees _____
03. ___Shopping/Commercial: Sq. Ft. _____ Acres _____ Employees _____
04. ___Industrial: Sq. Ft. _____ Acres _____ Employees _____
05. ___Educ Facilities: MGD _____
06. ___Transportation: Type _____
07. ___Mining: Mineral _____
08. ___Power: Type _____ Watts _____
09. ___Waste Treatment: Type _____
10. ___GCR Related
11. X Other: Air Polution Research

10. TOTAL ACRES: less.than one (1) 11. TOTAL $ CONSTR: _____

12. PROJECT ISSUES DISCUSSED IN DOCUMENT
01. ___Aesthetic/Visual
02. ___Agricultural Land
03. ___Air Quality
04. ___Archeological/Historical
05. ___Coastal Zone
06. ___Economic
07. ___Fire Hazard
08. ___Flooding/Drainage
09. X Geologic/Seismic
10. ___Jobs/Housing Balance
11. ___Minerals
12. ___Noise
13. ___Public Services
14. ___Schools
15. ___Septic Systems
16. ___Sewer Capacity
17. ___Social
18. ___Soil Erosion
19. ___Solid Waste
20. ___Toxic/Hazardous
21. ___Traffic/Circulation
22. ___Vegetation
23. ___Water Quality
24. X Water Supply
25. ___Wetland/Riparian
26. X Wildlife
27. ___Growth Inducing
28. ___Incompatible Landuse
29. ___Cumulative Effects
30. ___Other: _____

13. FUNDING (approx) Federal $: _____ State $: _____ Total $: _____

14. PRESENT LAND USE AND ZONING:

15. PROJECT DESCRIPTION:

Construction of two groundwater well sites on the bed of Owens Dry Lake to ascertain geologic conditions and to supply water for air quality research.

CLEARINGHOUSE CONTACT: Mark Goss
(916) 445-0613

STATE REVIEW BEGAN: 8-9-94
DEPT REV TO AGENCY: 9-1
AGENCY REV TO SCH: 9-6
SCH COMPLIANCE: 9-8

94082021

PLEASE NOTE SCH NUMBER ON ALL COMMENTS

PLEASE FORWARD LATE COMMENTS DIRECTLY TO THE LEAD AGENCY ONLY

AQMD/APCD: 9 (Resources: 8/13)

CMT	SNT	
___	___	Resources
___	___	Boating
___	___	Coastal Comm
___	___	Coastal Consv
___	___	Colorado Rvr Bd
___	___	Conservation
___	___	Fish & Game 5
___	___	Forestry
___	___	Parks & Rec/OHP
___	___	Reclamation
___	___	SCDC
___	___	DWR
		Bus Transp Hous
___	___	Aeronautics
___	___	CHP
___	___	Caltrans # 9
___	___	Trans Planning
___	___	Housing & Devel
___	___	Health & Welfare
___	___	Drinking H2O
___	___	Medical Waste

CMT	SNT	
		State/Consumer Svcs
___	___	General Services
___	___	OLA (Schools)
		Cal/EPA
___	___	ARB
___	___	CA Waste Mgmt Bd
___	___	SWRCB:--Grants
___	___	SWRCB:--Delta
___	___	SWRCB:--Wtr Quality
___	___	SWRCB:--Wtr Rights
___	___	Reg. WQCB # 6, Jk
___	___	DTSC/CTC
		Yth/Adlt Corrections
___	___	Corrections
		Independent Comm
___	___	Energy Comm
___	___	NAHC
___	___	PUC
___	___	Santa Mn Mtns
___	___	State Lands Comm
___	___	Tahoe Reg Plan
___	___	Other:

("S" = sent by lead / "-" = sent by SCH)

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Mail to: State Clearinghouse, 1400 Tenth Street, Room 121, Sacramento, CA 95814 — 916/445-0613

See NOTE below

SCH #

NOTICE OF COMPLETION AND ENVIRONMENTAL DOCUMENT TRANSMITTAL FORM

1. Project Title: 1994-1995 Owens Dry Lake Groundwater Well Program

2. Lead Agency: GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT Contact Person: Theodore D. Schade

3a. Street Address: 157 Short Street 3b. City: Bishop

3c. County: Inyo 3d. Zip: 93514 3e. Phone: (619) 872-8211

PROJECT LOCATION 4. County: Inyo 4a. City/Community: None

4b. Assessor's Parcel No. None 4c. Section 32 Twp. 17S Range 38E

5a. Cross Streets: State Hwys 136 and 190 5b. For Rural, Nearest Community: Keeler

6. Within 2 miles: a. State Hwy # 136 & 190 b. Airports c. Railways d. Waterways

7. DOCUMENT TYPE

CEQA
- 01. ___ NOP
- 02. ___ Early Cons
- 03. X Neg Dec
- 04. ___ Draft EIR
- 05. ___ Supplement/Subsequent EIR (Prior SCH No.: _____)
- 06. ___ NOE
- 07. ___ NOC
- 08. ___ NOD

NEPA
- 09. ___ NOI
- 10. ___ FONSI
- 11. ___ Draft EIS
- 12. ___ EA

OTHER
- 13. ___ Joint Document
- 14. ___ Final Document
- 15. ___ Other _____

8. LOCAL ACTION TYPE
- 01. ___ General Plan Update
- 02. ___ New Element
- 03. ___ General Plan Amendment
- 04. ___ Master Plan
- 05. ___ Annexation
- 06. ___ Specific Plan
- 07. ___ Community Plan
- 08. ___ Redevelopment
- 09. ___ Rezone
- 10. ___ Land Division (Subdivision, Parcel Map, Tract Map, etc.)
- 11. ___ Use Permit
- 12. ___ Waste Mgmt Plan
- 13. ___ Cancel Ag Preserve
- 14. X Other Construction Contract

9. DEVELOPMENT TYPE
- 01. ___ Residential: Units _____ Acres _____
- 02. ___ Office: Sq. Ft. _____ Acres _____ Employees _____
- 03. ___ Shopping/Commercial: Sq. Ft. _____ Acres _____ Employees _____
- 04. ___ Industrial: Sq. Ft. _____ Acres _____ Employees _____
- 05. ___ Water Facilities: MGD _____
- 06. ___ Transportation: Type _____
- 07. ___ Mining: Mineral _____
- 08. ___ Power: Type _____ Watts _____
- 09. ___ Waste Treatment: Type _____
- 10. ___ OCS Related
- 11. X Other: Air Pollution Research

10. TOTAL ACRES: less than one (1) 11. TOTAL JOBS CREATED: _____

12. PROJECT ISSUES DISCUSSED IN DOCUMENT
- 01. ___ Aesthetic/Visual
- 02. ___ Agricultural Land
- 03. ___ Air Quality
- 04. ___ Archaeological/Historical
- 05. ___ Coastal Zone
- 06. ___ Economic
- 07. ___ Fire Hazard
- 08. ___ Flooding/Drainage
- 09. X Geologic/Seismic
- 10. ___ Jobs/Housing Balance
- 11. ___ Minerals
- 12. ___ Noise
- 13. ___ Public Services
- 14. ___ Schools
- 15. ___ Septic Systems
- 16. ___ Sewer Capacity
- 17. ___ Social
- 18. ___ Soil Erosion
- 19. ___ Solid Waste
- 20. ___ Toxic/Hazardous
- 21. ___ Traffic/Circulation
- 22. ___ Vegetation
- 23. ___ Water Quality
- 24. X Water Supply
- 25. ___ Wetland/Riparian
- 26. X Wildlife
- 27. ___ Growth Inducing
- 28. ___ Incompatible Landuse
- 29. ___ Cumulative Effects
- 30. ___ Other _____

13. FUNDING (approx) Federal $ _____ State $ _____ Total $ _____

14. PRESENT LAND USE AND ZONING:

None

15. PROJECT DESCRIPTION:

Construction of two (2) groundwater well sites on the bed of Owens Dry Lake to ascertain geologic conditions and to supply water for air quality research.

16. SIGNATURE OF LEAD AGENCY REPRESENTATIVE: Ellen Hardebeck

DATE: August 4, 1994

NOTE: Clearinghouse will assign identification numbers for all new projects. If a SCH number already exists for a project (e.g. from a Notice of Preparation or previous draft document) please fill it in.

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FORM REVISED 4/86 - REPLACES CA189

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COPY