AQUATIC CONSULTING & TESTING, INC.

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18 May 2015

Ms. Debbie Tribioli
The Oasis at Anozira
c/o Kinney Management Services
6303 South Rural Road
Tempe, Arizona 85283

Ref: Oasis Lake, Current Status Report and Water and Sediment Depth Survey

Dear Ms. Tribioli:

The following report provides a summary of the current water quality and morphological conditions of Oasis Lake. A comprehensive water quality analysis of the lake was conducted on 21 April 2015 to determine the chemical and biological status of the lake waters. Measurements included nutrients, heavy metals, chlorophyll and algae, zooplankton and midge larvae densities, and irrigation suitability. Additionally, measurements of lake water depth and sediment depth were made to identify areas of excessive sediment accumulation and to project an approximate time when sediment removal would be required to maintain ecological integrity. Lake sediment was also analyzed for chemical content to determine if any special disposal procedures would be required when sediment removal activities are undertaken.

METHODS

Test methods utilized for the chemical and biological analyses were in accordance with USEPA and American Public Health Association (APHA) procedures. With the exception of total petroleum hydrocarbon testing, all analyses were conducted in the AC&T laboratory licensed by Arizona Department of Health Services (#AZ0003). Specific tests methods are referenced on the attached laboratory report.

Water and sediment depth were measured using a calibrated Sludge Judge. GPS location and depths were entered into the Surfer 8 mapping program (Golden Software, Golden Colorado) to generate a bathymetric (isopleth) maps. Sediment characterization and biology samples were collected with an Ekman dredge.

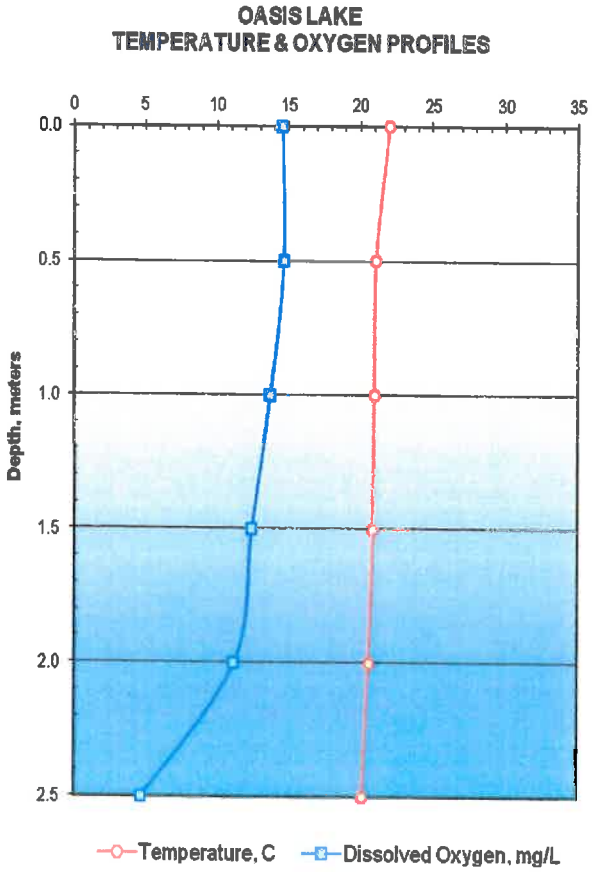
Irrigation standards were derived from a number of sources. General water quality data were compared to criteria for irrigation (Ayers and Westcot 1985; Duncan et al. 2000) and irrigation water quality standards (Texas AM&M University) Metals concentrations

measured in the sample were compared to recommended irrigation water limits (DeBoer 1983) and Arizona surface water quality standards (AAC 18-11-109) for irrigation. Langelier and Ryzner Saturation indices were calculated using a modified computer program developed by the American Water Works Association.

RESULTS

Field Parameters

Temperature and Oxygen: The vertical profile of temperature and oxygen for the deep portion of the lake is presented below. The data indicate some slight surface heating was occurring at the time of data collection. The oxygen concentration decreased with depth indicating incomplete circulation and high organic loading in the sediment. The condition is likely to worsen when higher water temperatures occur during the summer. Expansion of the aeration system should be considered.



Transparency: The Secchi disk depth was 0.64 m (25 inches) indicating moderate transparency, attributed to algae in the water column (see below). A transparency approaching 1.0 m (6 inches) typically provides suitable aesthetic appeal.

pH: Water pH was 9.0 SU. A pH of less than 9.0 is desirable because it reduces potential for toxic, un-ionized ammonia formation.

Nutrients

The primary nutrients utilized by aquatic plants (including algae) are nitrate, nitrite, ammonia, and phosphorus. Usually 0.03 mg/L phosphorus and 0.3 mg/L total nitrogen (sum of the three forms noted) is sufficient to support a moderate growth of algae.

The lake had a moderate total nitrogen concentration (1.61 mg/L), but an elevated phosphorus concentration (0.128 mg/L). These data indicate that ample nutrients are present to support a high concentration of algae. Vertical circulation, algaecides or aquatic dyes, and water withdrawal and replacement reduce the impact of the nutrient concentrations.

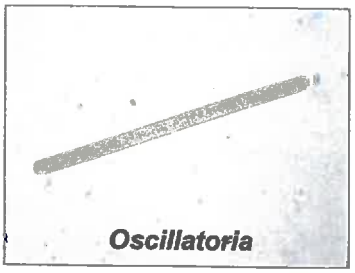
Heavy Metals

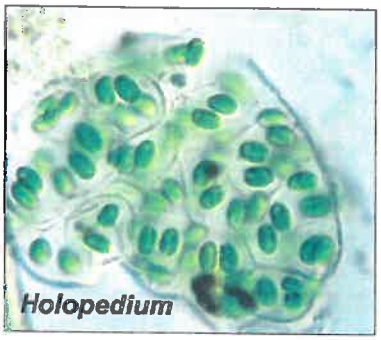
The potential toxicity of metals in a lake is influenced by water hardness. The lake water is moderately hard at 144 mg/L as $CaCO_3$, providing the ability to bind some soluble metals. The heavy metal concentrations measured meet the Arizona surface water quality standards for partial body contact recreation (PBC), fish consumption (FC), and warm water aquatic and wildlife (A&Ww) designations.

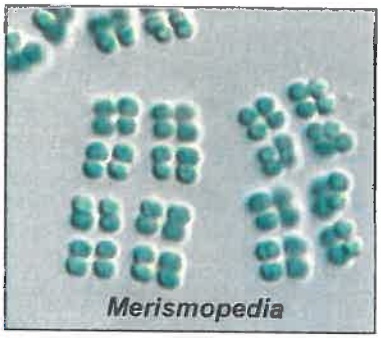
Metal	Result, mg/L	PBC max, mg/L	FC max, mg/L	A&Ww acute max, mg/L	A&Ww chronic max, mg/L
Antimony	<0.0010	0.747	0.640	0.088	0.030
Arsenic	<0.020	0.280	0.080	0.340	0.150
Barium	0.033	98.	Nns	nns	nns
Beryllium	<0.0010	1.867	0.084	nns	nns
Cadmium	<0.0010	0.700	0.084	0.011	0.0007
Chromium III	<0.0050	1400.	75.	0.768	0.099
Copper	0.0066	1.3	Nns	0.019	0.012
Lead	<0.0010	0.015	Nns	0.095	0.0037
Manganese	0.022	130.7	Nns	nns	nns
Mercury	<0.00005	0.280	Nns	0.0024	0.00001
Nickel	<0.0010	28.	0.511	0.637	0.071
Selenium	<0.0020	4.67	0.667	nns	0.002
Silver	<0.0010	4.67	8.0	0.006	nns
Thallium	<0.0010	0.075	0.001	0.700	0.150
Zinc	0.031	280.	5.1	0.159	0.159

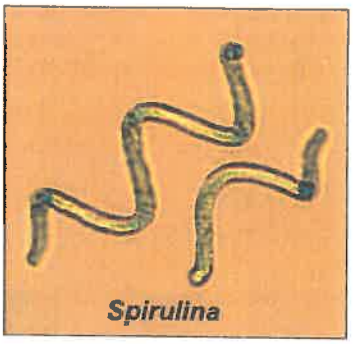
Biology

Phytoplankton: The lake had a reasonable amount of diversity in the phytoplankton (suspended algae), with 14 genera of algae identified. The dominant alga was the blue-green (Cyanophyta) filament, *Oscillatoria*. This alga can be problematic, producing strings along the lake edge or developing into floating mats on the water surface. It is also resistant to many algaecides. In terms of aesthetics, several other blue-green algae were present in the sample, including



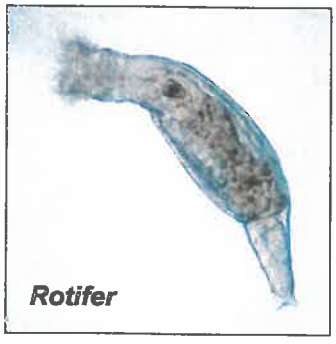


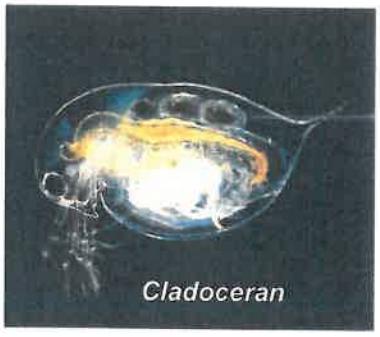


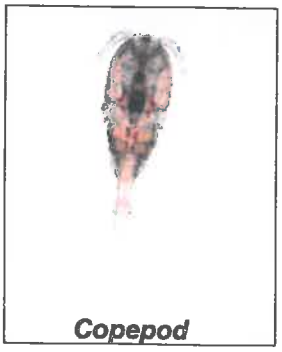


Merismopedia, *Spirulina*, and *Holopedium*. Although the cell count was moderate, the chlorophyll-a concentration was elevated (99.9 ug/L) indicating substantial algal biomass in the water column. The biomass was responsible for the less-than-desired water transparency. The chlorophyll to pheophytin ratio indicated the algae were in optimum physiological condition at the time of sampling.

Zooplankton: Zooplankton provides a natural means of phytoplankton control. Zooplankton is composed of nearly microscopic invertebrates that filter or selectively feed on particulates, including algae cells. Cladocerans and copepods are generally preferred, as they consume larger particles than rotifers.







The zooplankton density was nearly 300,000 per cubic meter indicating a very good potential for natural algae control. However, rotifers made up nearly 100 percent of the population.

Midges: Midge flies are common nuisance organisms in aquatic environments. The fly larvae develop in the sediment of the lake. When the larvae mature and emerge from the lake, the adults can fly into eye, ears and mouths of residents. They can amass in the cool and shade of eaves and overhangs during the warm day and under lights when they mate in the early morning and evening. Generally, larvae counts under 400 per square meter do not cause terrestrial issues. Bottom feeding fish, such as goldfish and sunfish are excellent predators of the fly larvae.

The midge larvae count was 120 per square meter. The density should not pose any immediate problems to lakeside residents.

E. coli bacteria: The bacteria count was 81 per 100 mL which meets the State partial body contact and the full body contact recreation standards. It indicates the bird and waterfowl waste is not causing an immediate public health issue with respect to the lake water.

Comparison to ADEQ Numeric Targets for Lakes and Reservoirs

Although these standards are enforceable only for State regulated lakes, they serve as a good barometer of the lake conditions. The table below shows the target concentrations for various water quality parameters in an urban reservoir compared to the measured values for Oasis Lake.

Parameter	Measured	Unit	ADEQ Target
Chlorophyll-a	99.9*	ug/L	30-50
Secchi depth	0.64*	m	0.7-1.0
Total phosphorus	128	ug/L	125-160
Total nitrogen	1.6	mg/L	1.7-1.9
Total Kjeldahl Nitrogen	1.4	mg/L	1.4-1.7
Blue-green algae	64.8*	%	<50
Dissolved oxygen	13.7	mg/L	6 (min, top meter)
pH	9.3*	SU	6.5-9.0

*Did not meet ADEQ target level.

Irrigation Parameters

Applicable water quality results are compared to general irrigation standards in the tables below. The data indicate slight to moderate irrigation restrictions which are typical for urban canal-fed irrigation lakes in metro-Phoenix.

Component	Lake Water	
	Conc.	Degree of Restriction
Tot. Dissolved Solids	596	Slight to moderate
Specific conductance	970	Slight to moderate
Sodium Absorption Ratio	4.6	Slight to moderate
Sodium toxicity	154	Slight to moderate
Chloride toxicity	204	Slight to moderate-surface or sprinkler
Nitrate-N toxicity	0.21	None
Boron	0.32	None
Bicarbonate toxicity	139	Slight to moderate

Oasis Lake nutrient concentrations (mg/L) are compared irrigation water guidelines below. Nutrients concentrations are in the low to normal range.

Parameter	Concentration, mg/L				
	Lake	Low	Normal	High	Very high
Nitrogen	1.6	<1.1	1.1-11.3	11.3-22.6	>22.6
Nitrate	0.2	<5	5-50	50-100	>100
Phosphorus	0.13	<0.01	0.1-0.4	0.4-0.8	>0.8
Calcium	31.4	<20	20-60	60-80	>80
Magnesium	31.3	<10	10-25	25-35	>35
Copper	0.01	<0.2	0.2 recommended maximum		
Zinc	0.03	<0.3	2.0 recommended maximum		

Metals toxicity does not appear to be an issue with the lake water with respect to irrigation use.

Metal	Concentration, mg/L	
	Measured	Recommended
Arsenic	<0.020	0.1
Cadmium	<0.0010	0.01
Chromium	<0.005	0.1
Copper	0.0066	0.2
Lead	<0.0010	5
Manganese	0.022	0.2
Nickel	<0.0010	0.2
Selenium	<0.0020	0.02
Zinc	0.031	2.0

Corrosivity: Calculation of the Langelier and Ryzner indices are attached to the report. The indices indicate whether a water has a tendency to corrode metal or, conversely, deposit calcium scale. The Langelier Saturation Index (LSI) is applicable to bulk systems as the lake. An index value less than zero indicates that the water is under-saturated with respect to calcium carbonate. Under-saturated water has a tendency to remove existing calcium carbonate protective coatings in pipelines and equipment. An LSI greater than zero indicates a water that is super-saturated with respect to calcium carbonate ($CaCO_3$) and scale forming may occur. A value of zero indicates water is neutral.

LSI	Indication
-2.0<-0.5	Serious corrosion
-0.5<0	Slightly corrosion but non-scale forming
LSI = 0.0	Balanced but pitting corrosion possible
0.0<0.5	Slightly scale forming and corrosive
0.5<2	Scale forming but non corrosive

The Ryzner Index (RI) is more applicable to flowing system as would be encountered within the pumps and irrigation piping. A neutral water has an index value of 6.0, with scaling water <6.0 and corrosive water >6.0.

RI	Indication
4.0 – 5.0	Heavy scale
5.0 – 6.0	Light scale
6.0 – 7.0	Little scale or corrosion
7.0 – 7.5	Corrosion significant
7.5 – 9.0	Heavy corrosion
>9.0	Corrosion intolerable

The indices were calculated at three temperatures, 10, 20, and 30 C to cover the possible annual water temperature range. Results are summarized below.

Temperature	LSI	RI
10	1.49 scale forming	6.01 neutral
20	1.74 scale forming	5.53 light scale
30	1.96 scale forming	5.09 light scale

The data indicate only minor scaling under bulk or flowing conditions.

Bathymetric Map

A contour map showing depth isopleths is attached to the report. The following morphometric values were derived from the analysis.

Characteristic	Unit	Value
Lake area	6.0	Acres
Lake volume	34.3	Acre-ft
	1,500,000	Cu-ft
	11,100,000	Gal
Mean depth	5.7	Ft
Max. depth	13.3	Ft

Sediment Map

A contour map showing depth of sediment isopleths is attached to the report. Maximum areas of sediment deposition appear to be in the center of the relatively open water areas. The deepest sediment layers approached 18 inches deep. This pattern of deposition is optimal because it minimizes flow restrictions and stagnant areas. Lake sediment is subject to accumulation, compaction, decomposition, and lateral transport.

The volume of sediment in relation to lake volume is shown below. The sediment currently occupies approximately 9 percent of the lake basin. Assuming the lake is about 25 years old (constructed in the late 1980s), the rate of deposition is 195 cubic yards per year. Using 15% percent of lake volume (8,300 cubic yards) as a conservative percentage as the trigger for dredging, sediment removal would be required in approximately 18 years (year 2033). Dredging could be accomplished for the entire lake or probably more economically, for just the areas of deepest deposition.

Parameter	Yd^3	Acre ft
Lake Volume	55335	34.3
Sediment volume	4869	3.02

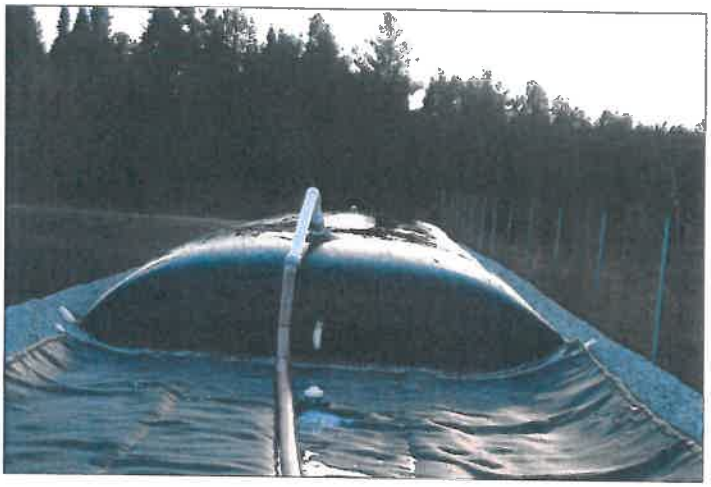
Sediment Volume as a % of total lake volume	9%

Sediment Characterization

The lake sediment was analyzed to determine if special handling or disposal would be required if removed from the lake. The sediment was subjected to characterization testing for the following hazardous waste categories: corrosivity, toxicity (metals) ignitability, petroleum composition, reactivity, and moisture.

The data indicate that sediment does not contain leachable metals in concentrations that are considered hazardous. The pH and flash point identify the sediment as non-

corrosive and non-ignitable. No petroleum hydrocarbons were detected. The moisture content of the sediment would not allow transport or disposal to a conventional landfill. Therefore, some type of drying of the dredged material e.g., (sun exposure and evaporation or de-watering using geotubes) would be required prior to transport and disposal. Additionally, hydrogen sulfide is present in the sediment. Sulfide may be considered a reactive chemical in some circumstances and is likely to create an odor issue with nearby residents. To address the potential reactivity of the material, air-drying of the sediment or application of an oxidizing additive such as potassium permanganate can remove or neutralize the hydrogen sulfide. Addition of the oxidizer will also eliminate odor issues.



Assuming the sediment chemistry remains unchanged in the next 20 years and drying and oxidation is incorporated into dredging plans, the material could be used for fill on site or at a nearby location to greatly reduce transport and disposal costs. Disposal as a hazardous waste in not anticipated.

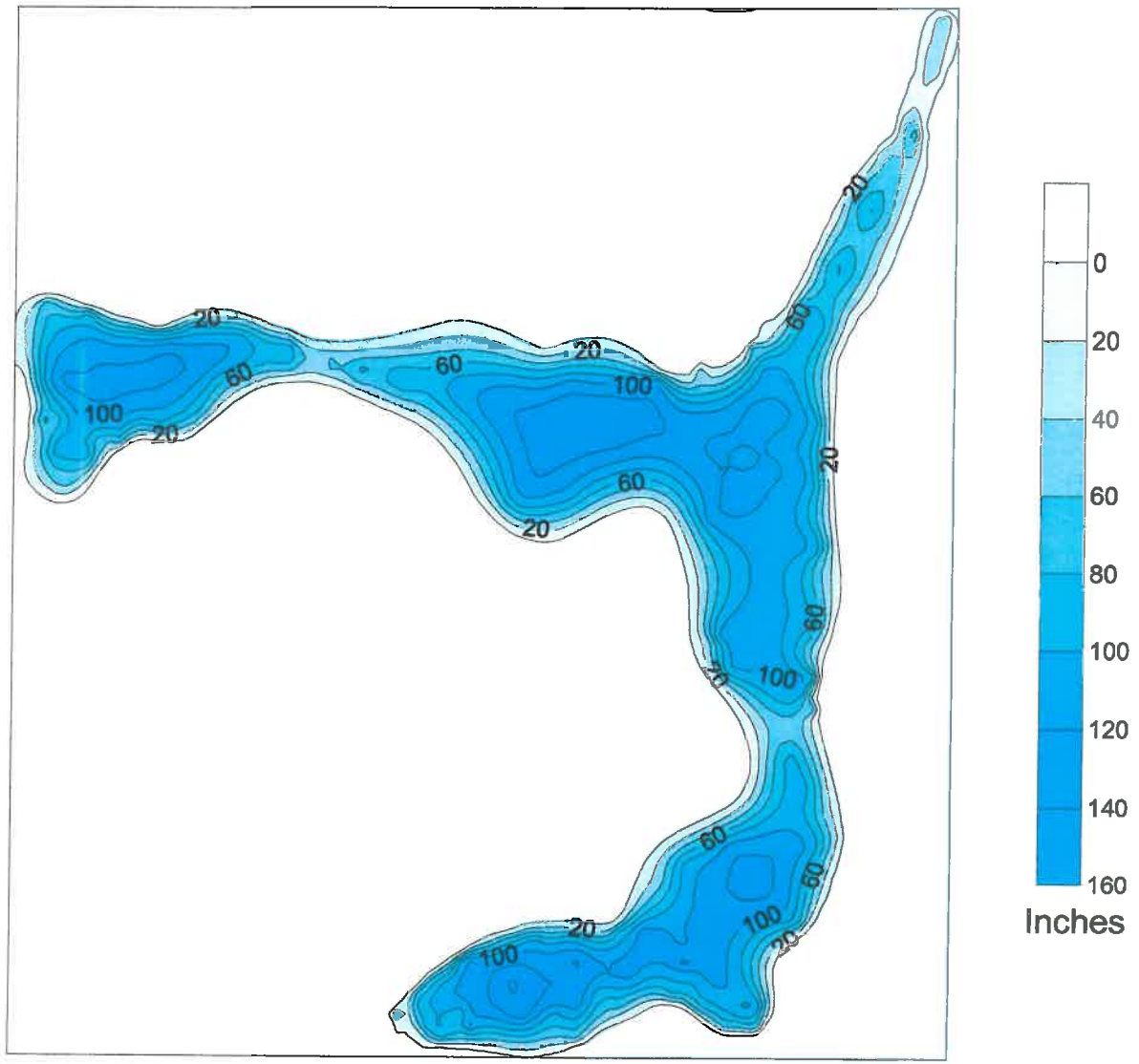
Respectfully,

AQUATIC CONSULTING & TESTING, INC.

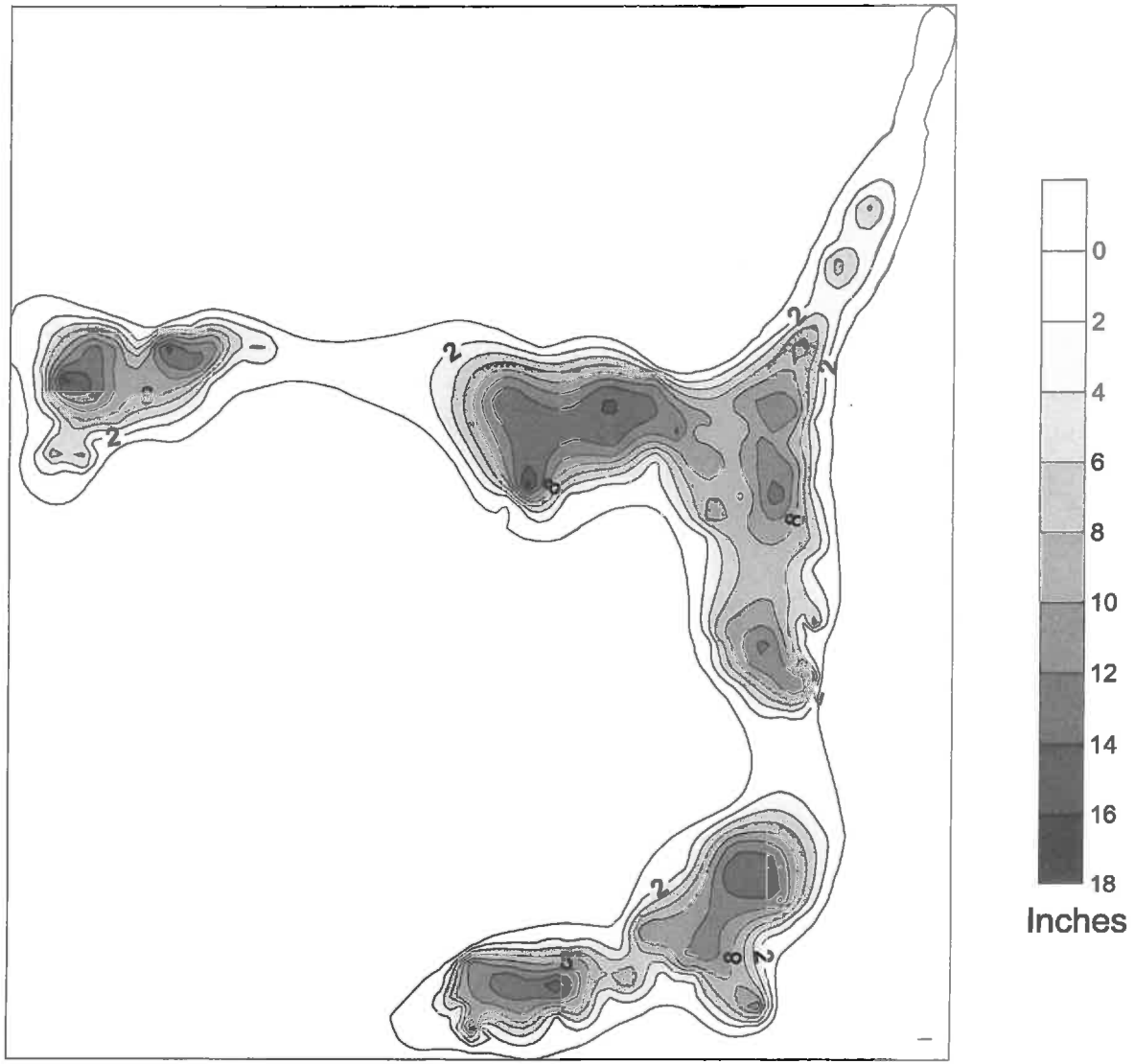
Frederick A. Amalfi, Ph,D., C.L.M.
Vice President.

North American Lake Management Society
NALMS
Frederick A. Amalfi, Ph.D.
Nationally Certified
91-01M
Certified Lake Manager

Oasis Lake - Water Profile



Oasis Lake - Sediment Profile



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Lic. No. AZ0003

LABORATORY REPORT

Client: Oasis at Anozira
c/o Kinney Management Services
6303 S. Rural Road
Tempe, Arizona 85283
Attn: Debbie Tribioli

Date Submitted: 04/21/15
Date Reported: 05/19/15

Project: Reserve

RESULTS

Client ID: Lake
ACT Lab No.: BX03547

Sample Type: Surface Water
Sample Time: 04/21/15 15:00

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Algae Count	05/18/15	05/18/15	SM 10200 F	See Attached	cells/mL
Algae Identification	05/18/15	05/18/15		See Attached	
Chl/Pheo Ratio	05/01/15	05/01/15	SM10200 H	1.78	
Chlorophyll a	05/01/15	05/01/15	SM10200 H	99.9	ug/L
Midge count	05/18/15	05/18/15	SM10500 C	120.	#/sq. meter
Pheophytin a	05/01/15	05/01/15	SM10200 H	<0.10	ug/L
Zooplankton	04/30/15	04/30/15	SM10200 G	295000.	#/cu. meter
Oxygen, Dissolved Field	04/21/15	04/21/15	SM4500 O G	13.7	mg/L as O2
pH, Field	04/21/15	04/21/15	SM4500H+ B	9.0	SU
Temperature, Field	04/21/15	04/21/15	SM2550 B	21.0	C
Alkalinity, Total	04/29/15	04/29/15	SM 2320 B	139.	mg/L as CaCO3
Chloride	05/04/15	05/04/15	SM4500-Cl C	204.	mg/L
Langelier Index	05/18/15	05/18/15	SM 2330 D	See Attached	
Nitrate + Nitrite - N	05/06/15	05/06/15	SM4500NO3 E	0.21	mg/L as N
Phosphorus, Total	05/06/15	05/06/15	365.3	0.128	mg/L as P
Total Hardness	04/27/15	04/27/15	SM2340C	144.	mg/L as CaCO3
Total Kjeldahl Nitrogen	04/27/15	04/27/15	SMNorg C,NH3 C/D	1.4	mg/L as N
Antimony, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Arsenic, Total	05/06/15	05/06/15	200.8	<0.020	mg/L
Barium, Total	04/30/15	04/30/15	200.8	0.033	mg/L
Beryllium, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Cadmium, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Calcium, Total	05/07/15	05/07/15	200.7	31.4	mg/L

RESULTS

Chromium, Total	04/30/15	04/30/15	200.8	<0.0050	mg/L
Copper, Total	04/30/15	04/30/15	200.8	0.0066	mg/L
Lead, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Magnesium, Total	05/07/15	05/07/15	200.7	31.3	mg/L
Manganese, Total	04/30/15	04/30/15	200.8	0.022	mg/L
Mercury, Total	05/07/15	05/07/15	245.7	<0.00005	mg/L
Nickel, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Selenium, Total	04/30/15	04/30/15	200.8	<0.0020	mg/L
Silver, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Sodium, Total	05/07/15	05/07/15	200.7	154.	mg/L
Thallium, Total	04/30/15	04/30/15	200.8	<0.0010	mg/L
Zinc, Total	04/30/15	04/30/15	200.8	0.031	mg/L
E. coli, Colilert	04/21/15	04/22/15	SM 9223 B	81	MPN/100 mL
Conductivity	04/30/15	04/30/15	120.1	970.	umho/cm @ 25 C
Total Dissolved Solids	04/28/15	05/04/15	SM2540 C	596.	mg/L

Reviewed by:

Frederick A. Amalfi, Ph.D.
Laboratory Director

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Email: lab@aquaticconsulting.com

CHAIN OF CUSTODY

PWS ID #:

Client Name: Oasis at Anozira
Address: (Street / City, State, Zip)
Phone:
Fax:
Contact:
Sampler Signature:

PO#:
Project: Reserve
Remarks: SDz = 12"; pH = ; T = 22.0

Chemistry / **Biology** / **WET** analyses; No. of Containers

SAMPLE ID	SAMPLE Date	SAMPLE Time	AM/PM	SAMPLE TYPE	Metals (See Below)	☐ TDS ☐ TSS ☐ TS ☐ SETT ☐ TVS ☐ VSS	☐ HEM ☐ TPHC ☐ MBAS ☐ CN ☐ Sulfide	~~☐ BOD ☐ COD ☐ New Source~~ Cl, Alk	☐ Tot.P ☐ O-PO$_4$	☐ Nitrate + Nitrite ☐ Nitrite	☐ TKN ☐ Ammonia	~~☐ THM's ☐ HAAS~~ SDz, pH, T, DO	~~☐ 525 ☐ 625 ☐ 8270~~ EC	☐ 524 ☐ 624 ☐ 8260	☐ Perchlorate ☐ Radio ☐ Asbestos	Total Coliform ☐ Presence/Absence ☐ MPN	☐ E. Coli ☐ Fecal Strep	~~Fecal Coliform ☐ MF~~ Chl/Phe	~~☐ MICRO SCOPE ID~~ Zoop	~~☐ Plate Count~~ Midge Ct	☐ Algae ID/Count	~~☐ Acute ☐ Chronic~~			HCl	$Na_2S_2O_3$	H_2SO_4	HNO_3	NONE	NaOH	NaOH/ZnAc	Laboratory Number
Lake	4/21/15	1500		AQ	X	X		X	X	X	X	X	X				X	X	X	X	X	X				2	1	1	6			BX03547

Metals: ☐ Al ☐ Sb ☐ As ☐ Ba ☐ Be ☐ B ☐ Cd ☒ Ca ~~☐ Cr ☐ Co~~ ☐ Cu ☐ Au ☐ Fe ☐ Pb ☒ Mg ☐ Mn ☐ Hg ☐ Mo ☐ Ni ☐ Se ☐ Ag ☒ Na
☐ Sr ☐ Tl ☐ Sn ☐ Ti ☐ V ☐ Zn + Lake Metals [ ] TOTAL [ ] DISSOLVED [ ] SDWA [ ] TCLP [ ] RCRA

Sample Types: DW, GW, SW, WW, AQ, Soil, Sludge or Solid

Sample Receiving	1.	2.	3.
ICE ☐ Y ☒ N	Relinquished By: [illegible signature]	Relinquished By:	Relinquished By:
Intact: ✓ Yes ___ No	Date: 4/21/15 Time: 1500 AM/PM	Date: Time: AM/PM	Date: Time: AM/PM
Temp: 25°C Auth Init: ___	Received By:	Received By:	Received By:
Pres: ✓ Yes(V) ✓ No/Lab	Date: Time: AM/PM	Date: Time: AM/PM	Date: Time: AM/PM
Sterile: 2 Yes ✓ No			
Total # containers: 10			

Attn: Your signature on this document authorizes analysis regardless of sample condition at time of submittal

White-Laboratory Yellow-Report Pink-Client

Sample delivery group #: -031

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Tempe, Arizona 85283
Attn: Debbie Tribioli

Date Submitted: 04/21/15
Date Reported: 05/19/15

Project: Reserve

RESULTS

Client ID: Sediment
ACT Lab No.: BX03552

Sample Type: Sediment
Sample Time: 04/21/15 15:00

Parameter	Analysis Date Start	Analysis Date End	Method No.	Result	Unit
Flashpoint/Ignitability	05/01/15	05/01/15	1010/1020	>200	o Celsius
Hydrogen Sulfide	04/22/15	04/22/15	Hach H2S-C	Present	Pres/Abs
Paint Filter (Free Liquids)	04/21/15	04/21/15	9095B	Positive	
Arsenic, TCLP	05/06/15	05/06/15	6020A	<0.020	mg/L
Barium, TCLP	04/30/15	04/30/15	6020A	0.61	mg/L
Cadmium, TCLP	04/30/15	04/30/15	6020A	<0.0010	mg/L
Chromium, TCLP	04/30/15	04/30/15	6020A	<0.0050	mg/L
Lead, TCLP	04/30/15	04/30/15	6020A	<0.0010	mg/L
Mercury, TCLP	05/07/15	05/07/15	7474	<0.0002	mg/L
Selenium, TCLP	04/30/15	04/30/15	6020A	<0.0020	mg/L
Silver, TCLP	04/30/15	04/30/15	6020A	<0.0010	mg/L
Total Petroleum Hydrocarbons	04/22/15	04/22/15	8015D	See Attached *	mg/L
pH, 1:1 Extract	05/05/15	05/05/15	150.1 (mod.)	7.1@20C	SU
Total Solids	04/24/15	05/01/15	SM2540 G	36.0	%

Reviewed by: Frederick A. Amalfi, Ph.D.
Laboratory Director

AQUATIC CONSULTING & TESTING, INC.
1525 W. University Drive, Suite 106 • Tempe, AZ 85281
Phone: (480) 921-8044 • Fax: (480) 921-0049
Email: lab@aquaticconsulting.com

CHAIN OF CUSTODY

PWS ID #

Client Name: OASIS AT ANOZIRA
Address:
Street
City, State, Zip
Phone:
Fax:
Contact:
Sampler Signature: [signature]

PO#
Project: Reserve
Remarks:

SAMPLE ID	SAMPLE Date	SAMPLE Time	AM/PM	SAMPLE TYPE	Metals (See Below)	❑ TDS ❑ TSS ❑ TS ❑ SETT ❑ TVS ❑ VSS	❑ HEM ❑ TPHC ❑ MBAS ❑ CN ❑ Sulfide	❑ BOD ❑ COD ❑ New Source	~~❑ Tot. P ❑ O-PO4~~ Tot. solids	~~❑ Nitrate + Nitrite ❑ Nitrite~~ pH	~~❑ TKN ❑ Ammonia~~ Flash Pt	~~❑ THM ❑ HAAS~~ Paint Filter	❑ 525 ❑ 625 ❑ 8270 8015 AZ	❑ 524 ❑ 624 ❑ 8260	❑ Perchlorate ❑ Radio ❑ Asbestos	Total Coliform ❑ Presence/Absence ❑ MPN	❑ E. Coli ❑ Fecal Strep	Fecal Coliform ❑ MF	❑ MICRO SCOPE ID	❑ Plate Count	❑ Algae ID/Count	❑ Acute ❑ Chronic			HCl	$Na_2S_2O_3$	H_2SO_4	HNO_3	NONE	NaOH	NaOH/ZnAc	Laboratory Number
Sediment	4/21/15	1500	AM PM	sed	X				X	X	X	X	X																1			Bx03552

Metals: ❑ Al ❑ Sb ☒ As ☒ Ba ❑ Be ❑ B ☒ Cd ❑ Ca ☒ Cr ❑ Co ❑ Cu ❑ Au ❑ Fe ☒ Pb ❑ Mg ❑ Mn ☒ Hg ❑ Mo ❑ Ni ☒ Se ☒ Ag ❑ Na
❑ Sr ❑ Tl ❑ Sn ❑ Ti ❑ V ❑ Zn

[ ] TOTAL [ ] DISSOLVED [ ] SDWA [X] TCLP [ ] RCRA

Sample Types: DW, GW, SW, WW, AQ, Soil, Sludge or Solid

Sample Receiving:
ICE ❑ Y ☒ N
Intact: ✓ Yes ____ No
Temp: 27°C Auth Init: ____
Pres: ____ Yes/V ✓ No/Lab
Sterile: ____ Yes ✓ No
Total # containers: 1

1. Relinquished By: [signature]		2. Relinquished By:		3. Relinquished By:	
Date:	Time: AM PM	Date:	Time: AM PM	Date:	Time: AM PM
1. Received By:		2. Received By:		3. Received By:	
Date: 4/21/15	Time: 1600 AM PM	Date:	Time: AM PM	Date:	Time: AM PM

Attn: Your signature on this document authorizes analysis regardless of sample condition at time of submittal

White-Laboratory Yellow-Report Pink-Client

Sample delivery group #: -002

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Phoenix
4625 East Cotton Ctr Blvd
Suite 189
Phoenix, AZ 85040
Tel: (602)437-3340

TestAmerica Job ID: 550-43612-1
Client Project/Site: Oasis at Anozira

For:
Aquatic Consulting and Testing
1525 W University Dr. Ste 106
Tempe, Arizona 85281

Attn: Chris Christian

Authorized for release by:
4/24/2015 9:04:15 AM

Linda Eshelman, Project Manager II
(602)659-7629
linda.eshelman@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 550-43612-1

Laboratory: TestAmerica Phoenix

Narrative

Job Narrative
550-43612-1

Comments
No additional comments.

Receipt
The sample was received on 4/22/2015 12:15 PM; the sample arrived in good condition, properly preserved and, where required, on ice.
The temperature of the cooler at receipt was 1.2° C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Sample Summary

Client: Aquatic Consulting and Testing
Project/Site: Oasis at Anozira

TestAmerica Job ID: 550-43612-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
550-43612-1	BX-03552	Solid	04/21/15 15:00	04/22/15 12:15

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Client: Aquatic Consulting and Testing
Project/Site: Oasis at Anozira

TestAmerica Job ID: 550-43612-1

Client Sample ID: BX-03552
Date Collected: 04/21/15 15:00
Date Received: 04/22/15 12:15

Lab Sample ID: 550-43612-1
Matrix: Solid

Method: 8015 AZ R1 - Arizona - Total Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C22)	ND		30	mg/Kg		04/22/15 16:18	04/22/15 18:10	1
ORO (C22-C32)	ND		100	mg/Kg		04/22/15 16:18	04/22/15 18:10	1
Total Fuel Hydrocarbons (C10-C32)	ND		130	mg/Kg		04/22/15 16:18	04/22/15 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*100*		*70 - 130*	*04/22/15 16:18*	*04/22/15 18:10*	*1*

Method: 8015 AZ R1 - Arizona - Total Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 550-61682/1-A
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 61682

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
DRO (C10-C22)	ND		30	mg/Kg		04/22/15 08:43	04/22/15 13:46	1
ORO (C22-C32)	ND		100	mg/Kg		04/22/15 08:43	04/22/15 13:46	1
Total Fuel Hydrocarbons (C10-C32)	ND		130	mg/Kg		04/22/15 08:43	04/22/15 13:46	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*90*		*70 - 130*	*04/22/15 08:43*	*04/22/15 13:46*	*1*

Lab Sample ID: LCS 550-61682/2-A
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 61682

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
DRO (C10-C22)	200	180		mg/Kg		90	70 - 130
ORO (C22-C32)	400	388		mg/Kg		97	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*90*		*70 - 130*

Lab Sample ID: LCSD 550-61682/3-A
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 61682

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (C10-C22)	200	183		mg/Kg		92	70 - 130	2	20
ORO (C22-C32)	400	391		mg/Kg		98	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*90*		*70 - 130*

Lab Sample ID: 550-43058-A-4-C MS
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 61682

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
DRO (C10-C22)	ND		199	178		mg/Kg		90	56 - 145
ORO (C22-C32)	ND		398	312		mg/Kg		78	77 - 136

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
o-Terphenyl	*86*		*70 - 130*

Lab Sample ID: 550-43058-A-4-D MSD
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 61682

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
DRO (C10-C22)	ND		199	181		mg/Kg		91	56 - 145	2	30
ORO (C22-C32)	ND		398	377		mg/Kg		95	77 - 136	19	20

Method: 8015 AZ R1 - Arizona - Total Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 550-43058-A-4-D MSD
Matrix: Solid
Analysis Batch: 61717

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 61682

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	89		70 - 130

Client Sample ID: BX-03552
Date Collected: 04/21/15 15:00
Date Received: 04/22/15 12:15

Lab Sample ID: 550-43612-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8015B			61682	04/22/15 16:18	RLB	TAL PHX
Total/NA	Analysis	8015 AZ R1		1	61717	04/22/15 18:10	JGM	TAL PHX

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

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Certification Summary

Client: Aquatic Consulting and Testing
Project/Site: Oasis at Anozira

TestAmerica Job ID: 550-43612-1

Laboratory: TestAmerica Phoenix

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Arizona	State Program	9	AZ0728	06-09-15

Analysis Method	Prep Method	Matrix	Analyte

9

Method Summary

Client: Aquatic Consulting and Testing
Project/Site: Oasis at Anozira

TestAmerica Job ID: 550-43612-1

Method	Method Description	Protocol	Laboratory
8015 AZ R1	Arizona - Total Petroleum Hydrocarbons (GC)	SW846	TAL PHX

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PHX = TestAmerica Phoenix, 4625 East Cotton Ctr Blvd, Suite 189, Phoenix, AZ 85040, TEL (602)437-3340

Aquatic Consulting & Testing

1525 W. University Dr.
Suite 106
Tempe, AZ 85281
(480) 921-8044
(480) 921-0049 FAX
E-Mail Address: cchristian@aquaticconsulting.com
Attention: Chris Christian

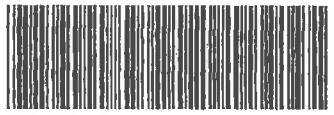
LAB I.D. NUMBER: 550-43612

Subcontract Chain of Custody

DATE: April 22, 2015 PAGE 1 OF 1

Subcontract Laboratory:

Test America, Inc.
4645 E. Cotton Center Blvd.
Building 3, Suite 189
Phoenix, AZ 85040
Phone: (602) 659-7629
Attn: Sample Receiving



AC&T Sample ID	Date	Time	Matrix	Lab ID	8015 AZ	Number of Containers
BX-03552	4/21/2015	15:00	Sed.	-1	X	1

Sampler Name:

Project Name:	Oasis at Anozira
Project Name:	
Reserve	
Notes:	

Sample Receipt

No. Containers:	1	
Custody Seals:	NO	
Received Intact:	Yes	No
Received Cold:	Yes	No
Temperature:	1.2C	
PRIORITY	Standard	

RELINQUISHED BY:
Signature:
Printed Name: T Baker
Time: 0946
Date: 4-22-15
Aquatic Consulting & Testing

SAMPLED RECEIVED BY:
Signature:
Printed Name: E.Dow
Time: 946
Date: 4/22/15

RELINQUISHED BY:
Signature:
Printed Name: E. Dow
Time: 1215
Date: 4/22/15

SAMPLED RECEIVED BY:
Signature:
Printed Name: Shelli
Time: 1215
Date: 4/22/15
Test America, Inc.

Login Sample Receipt Checklist

Client: Aquatic Consulting and Testing

Job Number: 550-43612-1

Login Number: 43612
List Number: 1
Creator: Shoemaker, Cory M

List Source: TestAmerica Phoenix

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	Check done at department level as required.