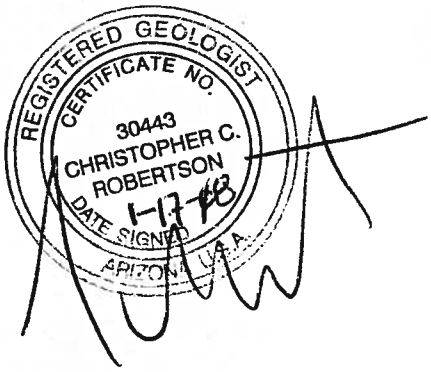
CAVE CREEK LANDFILL
MONITOR WELL COMPLETION REPORT

Prepared For:

MARICOPA COUNTY
Risk Management Department
222 N. Central Ave., Suite 1110
Phoenix, Arizona 85004



Prepared By:

BRYAN A. STIRRAT & ASSOCIATES
1422 North 44th Street #208
Phoenix, Arizona 85008
(602) 267-0336

January 2008

7504

BRYAN A. STIRRAT & ASSOCIATES
CIVIL AND ENVIRONMENTAL ENGINEERS

January 18, 2007

Ms. Rita Neill
Maricopa County
Risk Management Department
222 North Central Avenue, Suite 1110
Phoenix, Arizona 85004

SUBJECT: CAVE CREEK MONITORING WELL COMPLETION REPORT

Dear Ms. Neill,

This monitor well completion report was prepared to document the construction and installation of monitor well MW-3, ADWR number 55-216293. MW-3 is located on the southeast side of Black Mountain Parkway, on property owned by Dove Valley Ranch Community Association. It was installed to provide long-term ground-water monitoring and to comply with Arizona Department of Environmental Quality Consent Order Identification Number 30604.

Thank you for giving Bryan A. Stirrat & Associates this opportunity and we look forward to working with Maricopa County again in the future. Please advise if you have any questions or require any further information.

Sincerely,

Paul J. Jackson
Geologist, Phoenix Office

1422 N 44th Street, Suite 208, Phoenix, Arizona 85008 • (602) 267-0336 • Fax: (602) 267-0446

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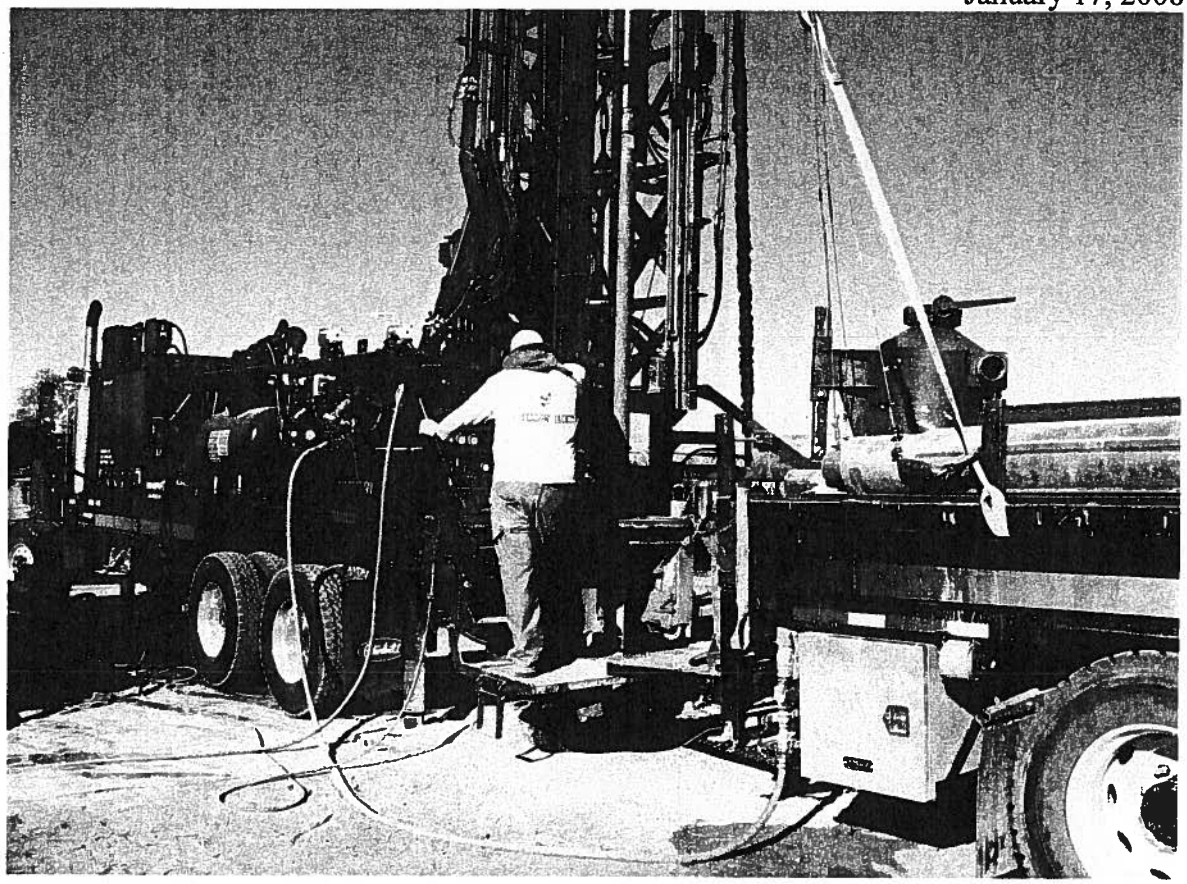
MONITOR WELL MW-3
COMPLETION REPORT
CAVE CREEK LANDFILL

1.0 INTRODUCTION

Bryan A. Stirrat & Associates (BAS) is under contract with Maricopa County Risk Management (County) to provide environmental consulting services associated with an on-going groundwater investigation at Cave Creek Landfill (CCL). The following report summarizes the installation of monitor well MW-3 at the CCL. The well was installed in order to provide long-term ground-water monitoring and to comply with Arizona Department of Environmental Quality Consent Order Identification Number 30604.

MW-3 is installed southeast of the CCL, on the southeast side of Black Mountain Parkway, on property owned by Dove Valley Ranch (DVR) Community Association. The County was granted approval from DVR Home Owners' Association (HOA) to install the monitor well within a landscape area at the location. The location of MW-3 is shown on Figure 1.

Prior to the commencement of drilling activities, a monitor well permit was obtained from the Arizona Department of Water Resources (ADWR). Monitor well MW-3 is identified by ADWR registration number 55-216293, and a copy of the approved Intent to Drill a Monitor/Piezometer Well application is provided in Appendix A. In addition, Arizona Bluestake was contacted and requested to locate utilities in the area (Bluestake Ticket Number 2007040200390).



Mud-Rotary Drill Rig.

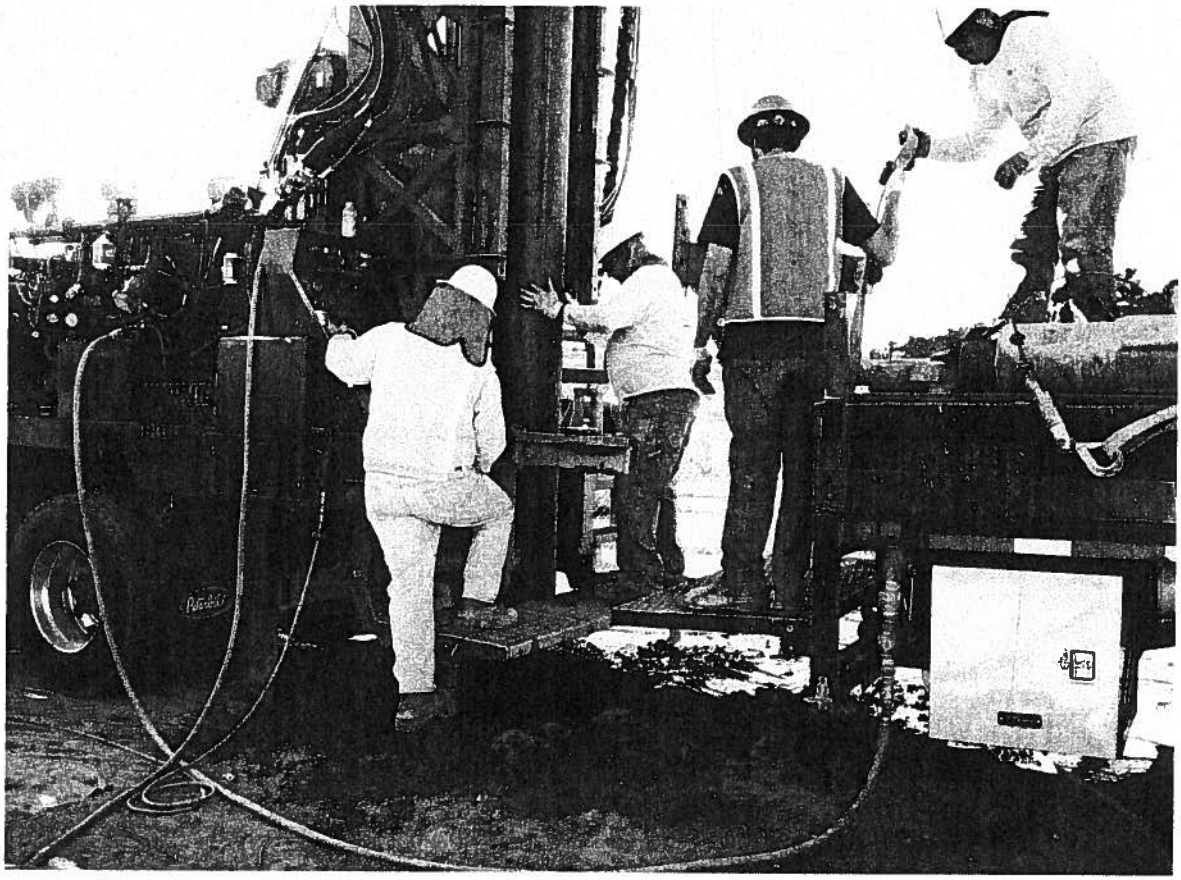
2.0 DRILLING AND CONSTRUCTION

Monitor well MW-3 was installed between September 24 and December 13, 2007. Drilling services were performed by Yellow Jacket Drilling (YJD) of Phoenix, Arizona, utilizing a V-2000 Versadrill mud rotary rig. A low carbon steel conductor casing, 14-inches in diameter and 20-feet in length, was initially installed at the well location just beneath the ground surface. The 12.25-inch diameter borehole was then advanced to a total depth of approximately 830-feet below ground surface (bgs). Groundwater was identified at a depth of approximately 685-feet bgs.

Drill cuttings were logged by a BAS geologist in general accordance with the Unified Soil Classification System. Soil conditions varied from sand with clay to gravel. Field

Boring Logs are provided in Appendix B, and a Well Boring Diagram is provided in Figure 2.

The monitor well blank casing and screen consists of welded, 20-foot sections of 6-inch diameter low-carbon steel. Blank casing was installed from just below the ground surface to a depth of 679 feet, bgs. A total of 120-feet of well screen, with 0.125-inch wide by 3- inch long slots, was installed from a depth of 679- to 799-feet bgs. An end cap was installed on the bottom of the well.



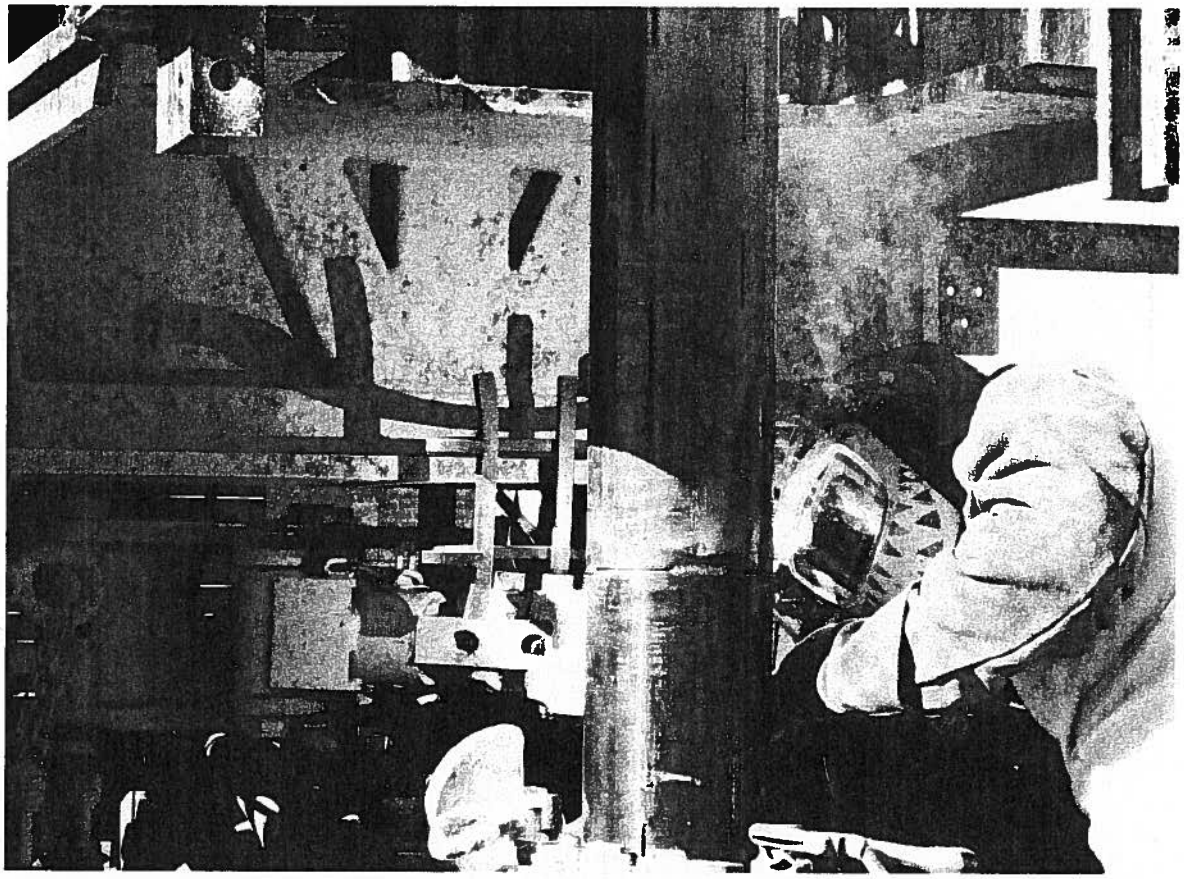
Drilling Crew lowers the conductor casing into the hole.

Following installation the well casing, a tremmie pipe was constructed in the borehole annulus and used to install the filter pack, bentonite seal, and cement/bentonite grout. The filter pack, consisting of Tacna #10 gravel, was installed from a depth of 815 feet bgs to approximately 24 feet above the top of the well screen (655-feet bgs).

Approximately 30 feet (from 655 feet bgs to 625 feet bgs) of bentonite was installed on top of the filter pack and hydrated. Type II neat cement/grout was placed in the annulus from the top of the bentonite (625 feet bgs) to approximately 3 feet bgs.

The MW-3 surface completion consists of a 18-inch diameter, flush mount traffic-rated vault set within a 3-foot diameter by 3-foot deep concrete pad. The ADWR well registration number is stamped on the outside of the cast-iron vault lid. An MW-3 As-Built Well Construction Diagram is provided in Figure 3.

Cuttings and fluids generated during drilling activities were contained on-site and disposed of at the CCL, as authorized by the County. At the time of this report, impacted landscaping at the site was being re-vegetated to pre-drilling conditions in accordance with the County's agreement with the DVR Home Owners' Association. In addition, the wellhead elevation was being surveyed by the County.



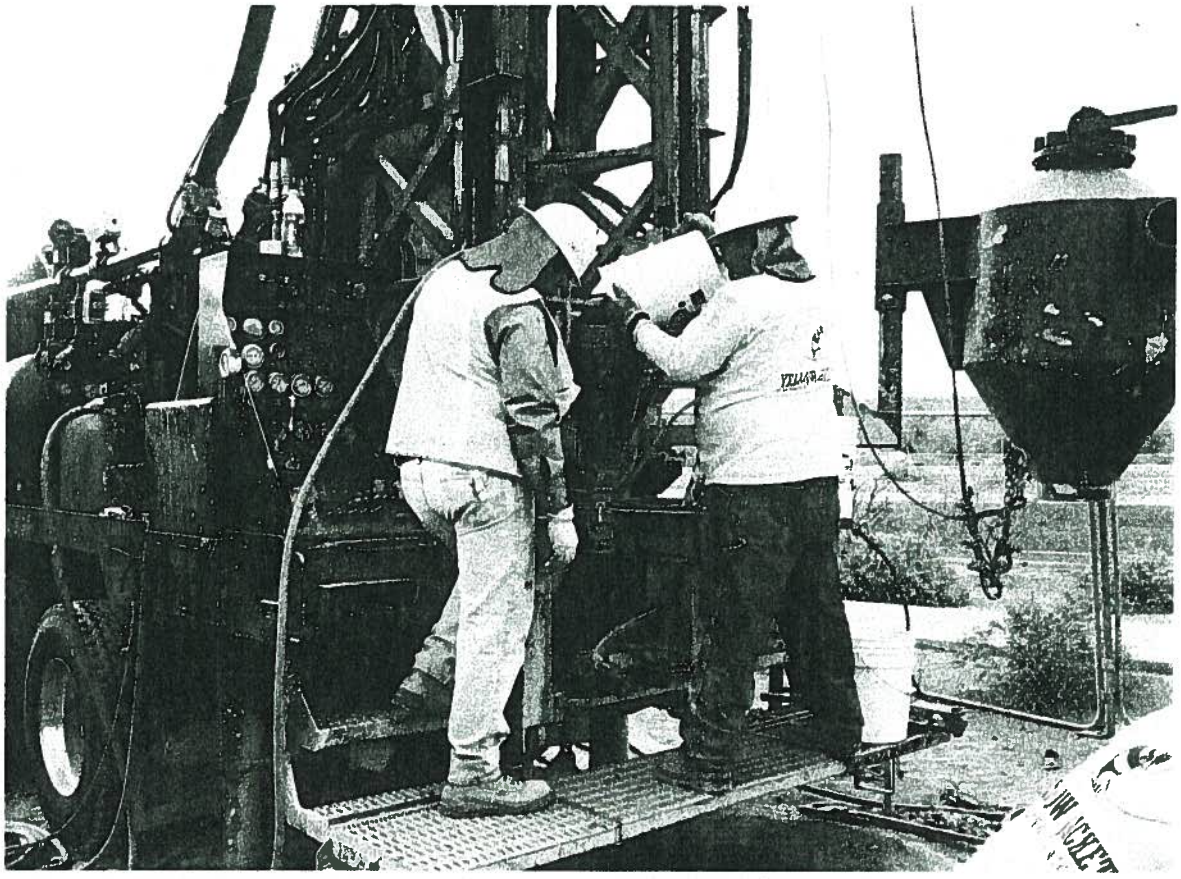
Welding of Screened Well Casing.

3.0 DEVELOPMENT AND PUMP INSTALLATION

Monitor well development was conducted by airlifting residual drilling fluids and groundwater until the water was clear and free of sediment. The well was purged at an average rate of 9.7-10 gallons per minute for a period of approximately nine hours. Well development water pumped into a water truck and disposed of at CCL.

Following development of the well, YJD installed a dedicated three horsepower Franklin submersible pump, model AquaDuty 4400. The pump was installed at a depth of 777 feet bgs, and is connected to 1.25-inch diameter galvanized discharge pipe. A 1-inch diameter galvanized sounding tube was additionally installed to a depth of 777 feet bgs. A portable control box is provided to operate the pump. Information regarding the pump is included in Appendix C.

what's the elev.



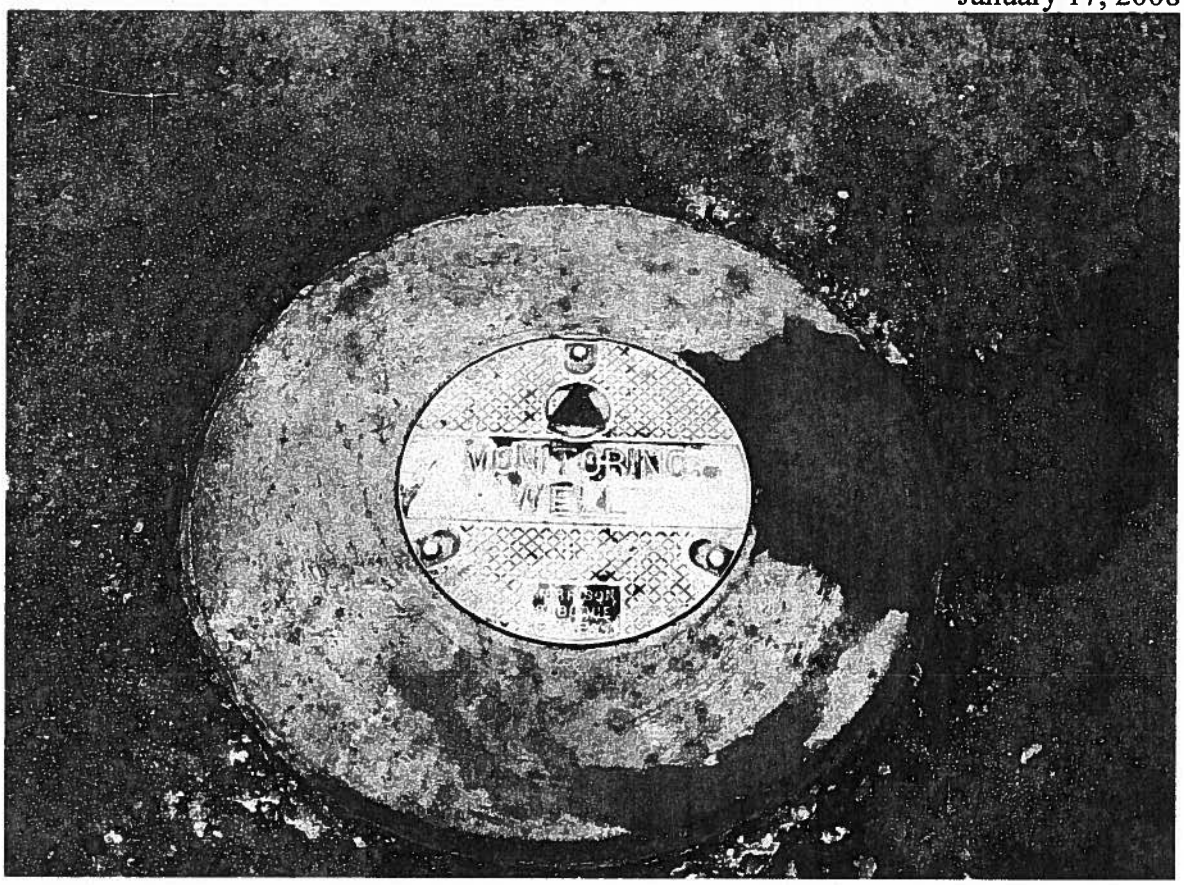
Installation of Filter Pack.

4.0 GROUNDWATER SAMPLING

The initial groundwater sampling for MW-3 was conducted on December 21, 2007. Prior to sampling, three well volumes (a total of 503 gallons) were evacuated at a rate of ten gallons per minute (gpm) and discharged to the ground surface. The purge water was monitored for pH, temperature, and specific conductance and the field parameters were recorded. The water sample was collected when three well volumes had been purged and the field parameters had stabilized. Monitor well sampling data is included on Table 2.

The water sample (sample identification MW-3), was collected directly into laboratory-provided containers through a sampling port attached to the wellhead. The samples were immediately placed on ice and shipped via FedEx to Environmental Science Corp. under chain-of-custody (COC) procedures. The samples were analyzed by Environmental Science for alkalinity, fluoride, nitrate, nitrite, sulfate, total dissolved solids (TDS), calcium, iron, magnesium, potassium, sodium, and volatile organic compounds (VOCs) in accordance with EPA Method 8260. Environmental Science Corp is licensed by the Arizona Department of Health Services to perform this analysis.

There were no EPA Method 8260 analytes (including trichloroethylene – TCE) detected above laboratory reporting limits identified in the sample. Moderately high concentrations of alkalinity, TDS, and magnesium typical of water in the Salt River Valley were identified. Other parameters were well within acceptable limits or were below laboratory detection limits. The complete analytical laboratory report and COC documentation are provided in Appendix D.



MW-3 Traffic-Vault.

TABLE 1

MONITOR WELL COMPLETION DATA

Well No.	ADWR Reg. No./ Legal Description	Start/ Completion Date	Casing Description		Drilling Method	Total Depth Drilled/ Casing Depth	Surface Completion	Pump and Setting
			Material	Interval (ft)				
MW-3	55-216293 T5N, R4E, SEC 7 SW ¼, SW ¼, SE 1/4	9/24/07 12/13/07	6" low carbon steel 6"low carbon steel 0.125" X 3" slots Tacna #10 Gravel Bentonite seal Grout seal End Cap	0-679 679-799 630-815 625-655 3-625 799	Mud Rotary	830'/799'	18" Dia. flush-mount traffic-rated vault	Franklin 3 HP, 240 Volt

TABLE 2

MONITORING WELL SAMPLING DATA

PROJECT: Cave Creek Groundwater

WELL NO: MW-3

SAMPLED BY: Paul Jackson

SAMPLING DATE: 12/21/07

SAMPLING METHOD: Submersible Pump

SAMPLING TIME: 2:14 p.m.

PURGE DATA

STATIC WATER LEVEL: 685 ft bgs.

DEPTH: 799 ft bgs.

TOTAL VOLUME: 167.58 gal.

TOTAL PURGE VOLUME (VOLUME x 3): 503 gal.

PURGE RATE: 10 gpm

PURGE START: 1:23 p.m.

PURGE END: 2:13 p.m.

GALLONS PURGED: 503 gal.

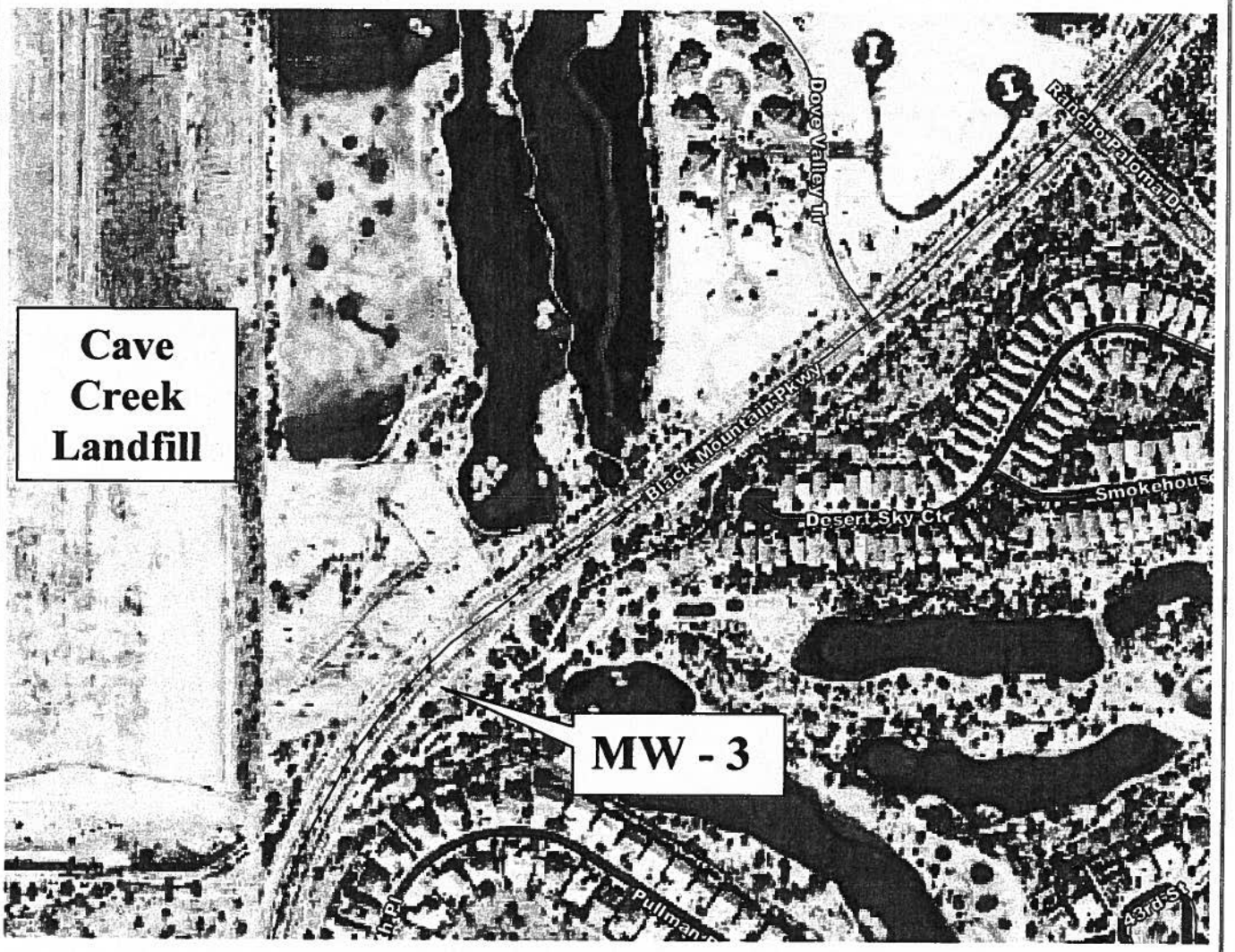
FIELD PARAMETERS

pH: 7.8

TEMPERATURE: 24 Degrees Celsius

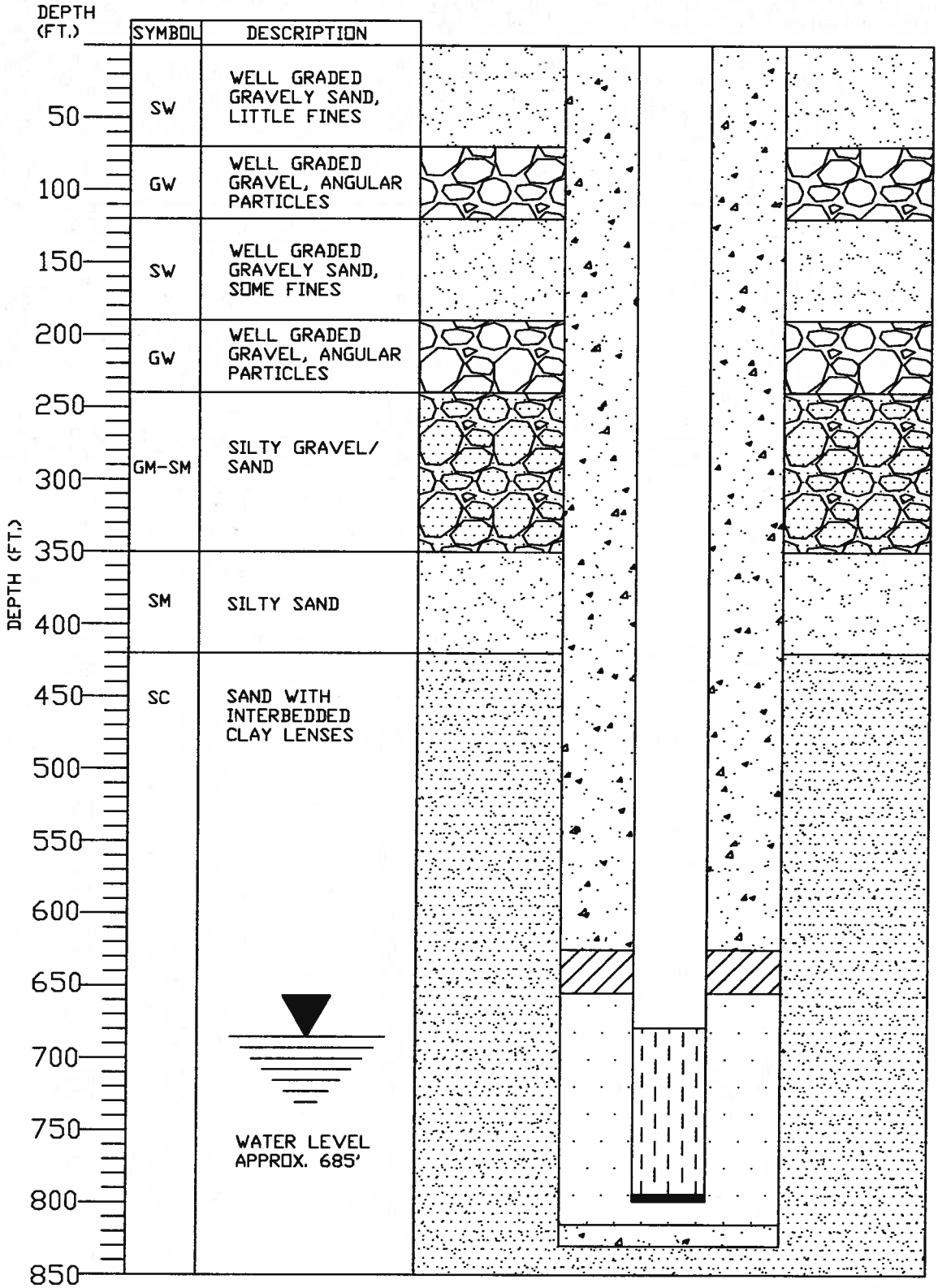
SPECIFIC CONDUCTANCE: 486 uS

COMMENTS: Sample water was clear, no odor.



Photograph Source: Flood Control District Maricopa County (2006)

BAS (602)-267-0336 BRYAN A. STIRRAT & ASSOCIATES CIVIL AND ENVIRONMENTAL ENGINEERS 1422 N. 44TH STREET, SUITE 208, PHOENIX, AZ 85008	**FIGURE 1. MW-3 LOCATION MAP** Cave Creek Landfill Southeast of Black Mountain Parkway 1.3 Miles South of Carefree Highway Phoenix, Arizona SCALE: One Inch = 350 Feet (Approximate)	↑ N



(602) 267-0336
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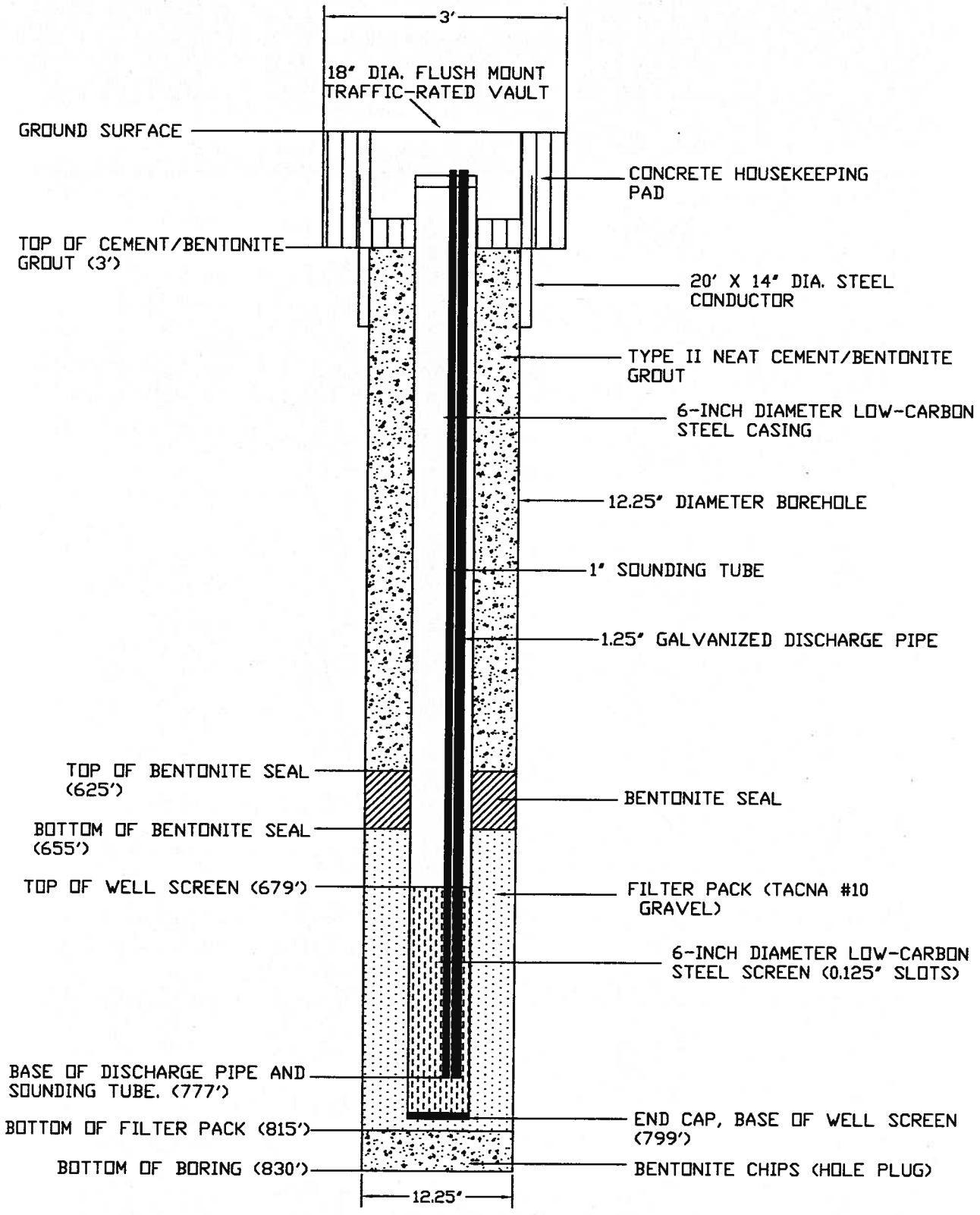
CIVIL AND ENVIRONMENTAL ENGINEERS
1422 NORTH 44TH STREET, SUITE 208, PHOENIX, AZ 85008

CAVE CREEK LANDFILL
3955 EAST CAREFREE HIGHWAY, PHOENIX, AZ

FIGURE 2: WELL BORING DIAGRAM

JOB NO. 2007.0055
DATE JANUARY 2008
DRAWN BY PJJ
FILE NAME: ASBUILTMW3DETAIL.DWG



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CAVE CREEK LANDFILL
3955 EAST CAREFREE HIGHWAY, PHOENIX, AZ

FIGURE 3: AS-BUILT WELL CONSTRUCTION DIAGRAM

JOB NO. 2007.0055
DATE JANUARY 2008
DRAWN BY PJJ
FILE NAME: WELLDIAGRAM2.DWG

APPENDIX A:

NOTICE OF INTENT TO DRILL, DEEPEN, OR MODIFY A MONITOR/PIEZOMETER ENVIRONMENTAL WELL

Arizona Department of Water Resources
Water Management Support Section
P.O. Box 33589 Phoenix, Arizona 85067-3589
(602) 771-8500 • (800) 352-8488
www.azwater.gov

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

FEE

- Review instructions prior to completing form in black or blue ink.
- You must include with your Notice:
  - $150 check or money order for the filing fee.
  - Well construction diagram, labeling all specifications listed in Section 6.
- Authority for fee: A.R.S. § 45-596.

RECEIVED
AUG 10 2007
WATER MGMT

** PLEASE PRINT CLEARLY **

AMA / INA	B	SB
Phx	6	
RECEIVED DATE	WS	
8.10.07	7	
ISSUED DATE	WQAR	CERCLA
8.14.07		

FILE NUMBER: A(5-4)7CCD
WELL REGISTRATION NUMBER: 55- 216293

SECTION 1. REGISTRY INFORMATION

Well Type — CHECK ONE
- [x] Monitor
- [ ] Piezometer
- [ ] Vadose Zone
- [ ] Air Sparging
- [ ] Soil Vapor Extraction
- [ ] Other (*please specify*):

Proposed Action — CHECK ONE
- [x] Drill New Well
- [ ] Deepen
- [ ] Modify

If Deepening or Modifying:
WELL REGISTRATION NUMBER: 55 -

Location of Well
WELL LOCATION ADDRESS (IF ANY): 8765 W. KELTON LN., PEORIA, AZ, 85382

TOWNSHIP (N/S)	RANGE (E/W)	SECTION	160 ACRE	40 ACRE	10 ACRE
5 N	4 E	7	SW ½	SW ¼	SE ¼

COUNTY ASSESSOR'S PARCEL ID NUMBER
BOOK | MAP | PARCEL 211600 25
COUNTY WHERE WELL IS LOCATED: MARICOPA

SECTION 2. OWNER INFORMATION

Well Owner
FULL NAME OF COMPANY, ORGANIZATION, OR INDIVIDUAL: MARICOPA COUNTY SOLID WASTE MANAGEMENT DEPT.
MAILING ADDRESS: 2901 W. DURANGO
CITY / STATE / ZIP CODE: PHOENIX, ARIZONA, 85009
CONTACT PERSON NAME AND TITLE: WILLIAM THORNTON
TELEPHONE NUMBER: 602-506-7336 | FAX: 602-506-4858

Landowner (if different from Well Owner)
FULL NAME OF COMPANY, GOVERNMENT AGENCY, OR INDIVIDUAL: DOVE VALLEY RANCH COMMUNITY ASSOCIATION
MAILING ADDRESS: 8765 W. KELTON LANE, Bldg. A-1, SUITE 102
CITY / STATE / ZIP CODE: PEORIA, AZ, ~~85008~~ 85382
CONTACT PERSON NAME AND TITLE: JOHN WAHMAN, COMMUNITY MANAGER
TELEPHONE NUMBER: 623-298-3338 | FAX: 623-298-3339

SECTION 3. DRILLING AUTHORIZATION

Drilling Firm
NAME: YELLOW JACKET DRILLING SERVICES
DWR LICENSE NUMBER: 78 | ROC LICENSE CATEGORY: A-4
TELEPHONE NUMBER: 602-453-3252 | FAX: 602-453-3258
E-MAIL ADDRESS: Info@yjdrilling.com

Consultant (if applicable)
CONSULTING FIRM: BRYAN A. STIRRAT & ASSOCIATES
CONTACT PERSON NAME: KEITH JOHNSON
TELEPHONE NUMBER: 602-267-0336 | FAX: 602-267-0446
E-MAIL ADDRESS: kjohnson@BAS.com

SECTION 4.

Questions	Yes	No	Explanation:
1. Are all annular spaces between the casing(s) and the borehole for the placement of grout at least 2 inches?	✓		2-inch annular spaces are special standards required for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
2. Is the screened or perforated interval of casing greater than 100 feet in length?	✓		100-foot maximum screen intervals are a special standard for wells located in and near groundwater contamination sites (such as CERCLA, WQARF, DOD, LUST).
3. Are you requesting a variance to use thermoplastic casing in lieu of steel casing in the surface seal?		✓	The wells must be constructed in a vault as defined in A.A.C. R12-15-801(27).
4. Is there another well name or identification number associated with this well? (e.g., MW-1, PZ2, 06-04, etc.)	✓		IF YES, PLEASE STATE MW-3
5. Have construction plans been coordinated with the Arizona Department of Environmental Quality?	✓		IF YES, PLEASE STATE AGENCY CONTACT & PHONE NUMBER
6. For monitor wells, is dedicated pump equipment to be installed?		✓	IF YES, PLEASE STATE DESIGN PUMP CAPACITY Gallons per Minute
7. Is this well a new well located in an Active Management Area AND intended to pump water for the purpose of remediating groundwater?		✓	IF YES, UNLESS THE WELL IS A REPLACEMENT WELL AND THE TOTAL NUMBER OF OPERABLE WELLS ON THE SITE IS NOT INCREASING, YOU MUST ALSO FILE A SUPPLEMENTAL FORM A.R.S. § 45-454(C) & (F). *(See instructions)*
8. Will the well registration number be stamped on the vault cover or on the upper part of the casing?	✓		IF NO, WHERE WILL THE REGISTRATION NUMBER BE PLACED?

Notice of Intent to Drill, Deepen, or Modify a *Monitor / Piezometer / Environmental* Well

WELL REGISTRATION NUMBER
55- 216293

SECTION 5. WELL CONSTRUCTION DETAILS

Drill Method
CHECK ONE
- ☐ Air Rotary
- ☐ Bored or Augered
- ☐ Cable Tool
- ☐ Dual Rotary
- ☑ Mud Rotary
- ☐ Reverse Circulation
- ☐ Driven
- ☐ Jetted
- ☐ Air Percussion / Odex Tubing
- ☐ Other (*please specify*):

DATE CONSTRUCTION TO BEGIN
SEPTEMBER 10, 2007

Method of Well Development
CHECK ONE
- ☑ Airlift
- ☐ Bail
- ☐ Surge Block
- ☐ Surge Pump
- ☐ Other (*please specify*):

RECEIVED
AUG 10 2007
WATER MGMT

Grout Emplacement Method
CHECK ONE
- ☐ Gravity
- ☐ Pressure Grout
- ☑ Tremie
- ☐ Other (*please specify*):

Method of Sealing at Reduction Points
CHECK ONE
- ☐ None
- ☑ Welded
- ☐ Swedged
- ☐ Packed
- ☐ Other (*please specify*):

Surface or Conductor Casing
CHECK ONE
- ☑ Flush Mount in a vault
- ☐ Extend 1' above grade

SECTION 6. PROPOSED WELL CONSTRUCTION PLAN (attach additional page if needed)

Attach a well construction diagram labeling all specifications below.

Borehole

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	BOREHOLE DIAMETER (inches)
0'	806'	12.25"

Casing

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	OUTER DIAMETER (inches)	MATERIAL TYPE (T) STEEL	PVC	ABS	IF OTHER TYPE, DESCRIBE	PERFORATION TYPE (T) BLANK OR NONE	WIRE WRAP	SHUTTER SCREEN	MILLS KNIFE	SLOTTED	IF OTHER TYPE, DESCRIBE	SLOT SIZE IF ANY (inches)
0'	802'	6"	✓								✓		0.125 x 3

Annular Material

DEPTH FROM SURFACE FROM (feet)	DEPTH FROM SURFACE TO (feet)	ANNULAR MATERIAL TYPE (T) NONE	CONCRETE	NEAT CEMENT OR CEMENT GROUT	CEMENT-BENTONITE GROUT	BENTONITE GROUT	BENTONITE CHIPS	BENTONITE PELLETS	IF OTHER TYPE OF ANNULAR MATERIAL, DESCRIBE	FILTER PACK SAND	FILTER PACK GRAVEL	FILTER PACK SIZE
0'	658'				✓						✓	

IF THIS WELL HAS NESTED CASINGS, SPECIFY NUMBER OF CASING STRINGS: No

EXPECTED DEPTH TO WATER: 680' Feet Below Ground Surface

I state that this notice is filed in compliance with A.R.S. § 45-596 and is complete and correct to the best of my knowledge and belief.

TYPE OR PRINT NAME AND TITLE
William Thornton

SIGNATURE OF WELL OWNER — DATE

TYPE OR PRINT NAME AND TITLE
KEITH A. JOHNSON

SIGNATURE OF LANDOWNER, IF APPLICABLE (SEE INSTRUCTIONS) — DATE

ARIZONA DEPARTMENT OF WATER RESOURCES

WATER MANAGEMENT SUPPORT SECTION

3550 N. Central Avenue
Phoenix, Arizona 85012

THIS AUTHORIZATION SHALL BE IN POSSESSION OF THE DRILLER DURING ALL DRILL OPERATIONS

WELL REGISTRATION NO: 55-216293 MW-3

AUTHORIZED DRILLER: YELLOW JACKET DRILLING SERVICES L L C LICENSE NO: 78

NOTICE OF INTENTION TO DRILL A MONITOR WELL(S) HAS BEEN FILED WITH THE DEPARTMENT BY:

WELL OWNER: MARICOPA COUNTY SOLID WASTE MGMT DEPT 2901 W DURANGO PHOENIX, AZ 85009

THE WELL(S) IS/ARE TO BE LOCATED IN THE:
SE ¼ OF THE SW ¼ OF THE SW ¼ SECTION 7 TOWNSHIP 5 NORTH RANGE 4 EAST

NO. OF WELLS IN THIS PROJECT: 1 ASSESSOR PARCEL NO: 211-60-025

THIS AUTHORIZATION EXPIRES AT MIDNIGHT ON THE 9TH DAY OF AUGUST, 2008

J. Carson

WATER MANAGEMENT SUPPORT

THE DRILLER MUST FILE A LOG OF THE WELL
WITHIN 30 DAYS OF COMPLETION OF DRILLING

GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

APPENDIX B:

FIELD BORING LOGS

BAS WELL CONSTRUCTION LOG

Date 9/25/07 - 10/2/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade				Conductor Casing (14' x Set 9/26/07 @ 1600
10				
20			SW	well graded gravely sand, little fines
				sample 25': 9/27 @ 1430
30				30' 9/27 @ 1605
				(Drilling is very slow-going)
40				
50				
				55' 10/1 @ 0850
60				60' 10/1 @ 0915

(10/1/07 1030 hrs. Drill bit becomes stuck due to slight cave in. Approx. 10ft is lost due to cave in)

BAS WELL CONSTRUCTION LOG

Date 10/2/07 - 10/4/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SW		
70		GW		well graded gravel. Angular particles, No fines
80				
90				90' 10/3 @ 0905
				Ground is still hard, Drilling is very slow.
100				
				105' 10/3 @1330
110				110' 10/3 @ 1440
120				

BAS WELL CONSTRUCTION LOG

Date 10/4/07 - 10/5/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SW Well graded gravel / sand. Some fines angular particles		
				125' 10/4 @ 0940
130				130' 10/4 @ 1020 (Drilling is easier now)
				135' 10/4 @ 1052
140				140' 10/4 @ 1255
				145' 10/4 @ 1340
150				150' 10/4 @ 1408
				155' 10/4 @ 1518
160				
				165' 10/5 @ 0912
170				170' 10/5 @ 0948
				175' 10/5 @ 1012
180				180' 10/5 @ 1027

BAS WELL CONSTRUCTION LOG

Date 10/5/07, 10/8/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SW		
				185' 10/5 @ 1048
190'				190' 10/5 @ 1106
		GW well graded gravel little fines. angular particles		195' 10/5 @ 1120
200				200' 10/5 @ 1212
				205' 10/5 @ 1222
210				210'
				215' 10/5 @ 1310
220				220' 10/5 @ 1322
				225' 10/5 @ 1335
230				
240				240' 10/8 @ 0858

BAS WELL CONSTRUCTION LOG

Date 10/8/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		GM Silty Gravel-Sand Mixture		
245				10/8 e 0927
250				0943 (Drilling is very easy)
255				0953
260				1020
265				1047
270				
275				1123
280				1132
285				1156
290				1222
295				1240
300				1258

BAS WELL CONSTRUCTION LOG

Date 10/8/07, 10/9/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		GM Silty Gravel · Sand Mixture Angular particles		305' 10/8 e 1309
310				310' 1329
				315' 1513
320				
				325' 10/9 e 1018
330				330' 1038
				335' 1105
340				
350		SM Silty Sand Mix		
360				

BAS WELL CONSTRUCTION LOG

Date 10/9/07, 10/10/07 Well No. _____ Sheet ___ of ___

Project Name _____ Job No. _____

Drilling Co. _____ Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SM Silty Sand Mix		
370				370' 10/9 e 1450
				375' 1510
380				
390				
400				
410				
				415' 10/10 e 1130
420				

BAS WELL CONSTRUCTION LOG

Date 10/11/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SC Clayey-Sand Mix		
430				
440				
450				450' 10/11 @ 1107
				455' 1130
460				460' 1150
				465 1202
470				470 1400
				475' 1456
480				480' 1518

BAS WELL CONSTRUCTION LOG

Date 10/11/07, 10/12/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SC Clayey-Sand Mix		
				485' 10/11 @ 1534
490				490' 10/12 @ 0842
				495' 0905
500				500' 1019
				505' 1042
510				510' 1123
				515 1256
520				520' 1320
				525' ~~1347~~ 1340
530				530' 1417
				535' 1448
540				540' 1519

Drilling going very smooth today

BAS WELL CONSTRUCTION LOG

Date 10/12/07, 10/13/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SC Clayey sand Mix		10/12 @ 1545
550'				10/13 @ 0943
				555' 1006
560'				560' 1019
				565 1046
570'				570 1115
				575 1133
580'				580 1145
				585 1257
590'				590' 1326
				595' 1354
600'				600 1413

BAS WELL CONSTRUCTION LOG

Date 10/16/07, 10/17/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SC Clayey Sand Mix		665' 10/16 e 1100
670	Gravel pack			670' 1125
				675' 1150
680				680' 1210
690				
700	Gravel pack			
710				710' 10/17 e 0833
				715' 0858
720				720' 0920

BAS WELL CONSTRUCTION LOG

Date 10/17 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade		SC Clayey Sand Mix		725' 10/17 @ 0944
730	Gravel Pack / Gravel Pack			730' 1019
				735' 1049
740				740'
750				750' 1209
				755' 1220
760				760' 1243
				765' 1330
770				770' 1340
				775' 1405
780				780' 1431

BAS WELL CONSTRUCTION LOG

Date 10/17/07, 10/18/07 Well No. _____ Sheet ___ of ___

Project Name Cave Creek Well Job No. _____

Drilling Co. Yellow Jacket Drilling Type of Rig _____

Hole Diameter _____ Well Diameter _____ Elevation Top of Casing _____

Logged By: P.J.J. Checked By: K. A. J.

Depth Feet	WELL DETAIL	Lithology	U.S.C.S.	REMARKS
Grade				
				785' 10/17 @ 1540
790				790' 10/18 @ 0840
				795' 0850
800				
810				
820				
830				Bottom of Boring (830')
840				

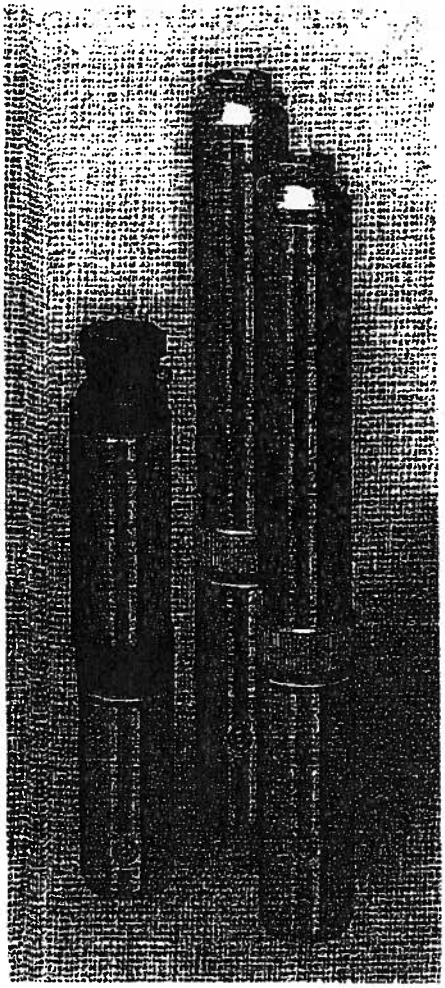
APPENDIX C:

PUMP SPECIFICATIONS

4" Submersible Pump

AquaDUTY 4400

Paul



Features:

- 5 performance ranges - 5, 7, 10, 18 & 25 GPM.
- Ceramic shaft sleeve and rubber discharge bearing protect shaft and eliminate sand wear.
- Intermediate bearing included in 5-25 GPM units greater than 24" in length and/or 2 HP and higher to provide improved shaft stability.
- Thermoplastic impellers and stages for maximum efficiency.
- Thermoplastic and stainless steel models include removable check valve systems.
- Urethane Eye & Hub Seals are remarkably resistant to abrasives, allowing sand and other abrasives to pass through each stage without wear or damage.
- Powered by Franklin corrosion-resistant 4" submersible motors
- Maximum water temperature with proper flow is 120° F, consult factory for further details.
- Removable suction screen on both thermoplastic and stainless steel units, screens prevent debris from clogging impellers and provide full flow performance.

NRTL/C
CSA 108
UL 778

Model Number Explanation:

2-Wire Example: T5M4M10P8-S1

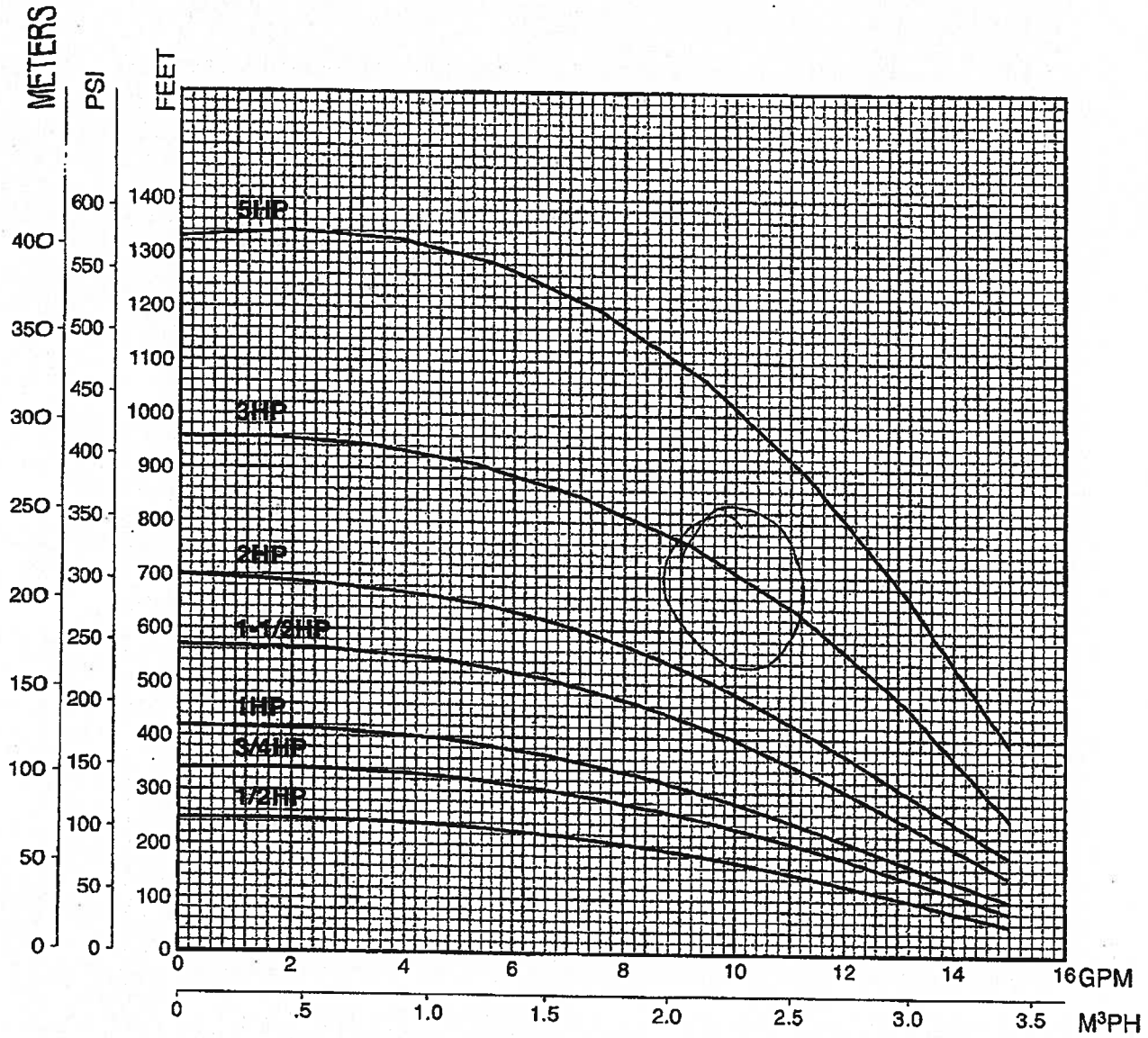
T	=	Two wire
5	=	1/2HP
M, 4, M	=	AquaDuty 4" Submersible
10	=	10 GPM
8	=	Number of stages
P	=	Plastic
S1	=	Single phase, 115 Volts
S2	=	Single phase, 230 Volts

Pump-end example: M4M7X25

M, 4, M	=	AquaDuty 4" Submersible
7	=	7 GPM
25	=	Number of stages
X	=	Stainless Steel

4" Submersible Pump

4400 10 GPM Performance Curves



4" Submersible Pump

4400 10 GPM Performance Charts

Capacities in U.S. Gallons per Minute

HP	PSI	DEPTH TO PUMPING WATER LEVEL, OR LIFT, IN FEET SHADED AREAS INDICATE MOST EFFICIENT PERFORMANCE																							
		20	40	60	80	100	120	140	160	180	200	240	260	300	340	360	400	440	480	500	600	700	800	900	1000	
		-	-	15	14	12	12	11	10	9	8	2														Shut-off 245 ft.
		14	14	12	12	11	10	9	7																	
		13	12	11	12	10	9	7																		
		12	11	11	10	9	7																			
		11	11	10	8	8																				
		10	10	8	8	4																				
		9	5																							
		-	-	-	15	14	13	13	12	12	11	9	9	6												Shut-off 339 ft.
		-	14	14	13	12	12	11	10	9	7	5														
		14	14	13	12	12	11	10	10	8	8	5	4													
		13	13	12	12	10	10	10	9	8	7															
		13	12	12	11	10	10	10	8	7	6															
		12	12	11	10	9	9	8	8	5																
		10	10	10	9	8	7	4																		
		-	-	-	-	15	14	13	13	12	12	11	10	9	8	7	4									Shut-off 427 ft.
		-	-	14	14	13	13	12	12	11	11	9	8	8	6	4										
		-	14	14	13	12	12	11	11	10	10	9	8	7	4											
		14	14	13	12	12	11	10	10	10	9	8	7	5												
		14	13	12	12	11	11	10	10	9	9	7	6	3												
		13	12	12	11	11	10	10	9	9	7	5	5													
		12	11	10	10	9	8	8	8	7	6															
		-	-	-	-	-	-	15	14	14	14	13	12	12	11	10	10	8	8	7						Shut-off 570 ft.
		-	-	-	-	14	14	14	13	13	12	12	11	11	10	9	9	8	8	5						
		-	-	-	14	14	14	13	13	12	12	11	11	10	9	9	8	7	4							
		-	-	14	14	14	13	13	12	12	11	11	10	10	9	8	7	6								
		-	14	14	14	13	13	12	12	12	11	10	10	9	8	8	6	4								
		14	14	14	13	13	12	12	12	11	11	10	10	9	8	7	5									
		14	13	13	12	12	11	11	11	10	10	9	8	7	6	4										
		-	-	-	-	-	-	-	-	15	14	14	13	13		12	11	10	10	9	7					Shut-off 704 ft.
		-	-	-	-	-	-	14	14	14	14	13	13	12			10	10	9	8	5					
		-	-	-	-	-	14	14	14	13	13	13	12	12		11	10	9	8	8	4					
		-	-	-	-	14	14	14	13	13	13	12	12	11		10	10	9	8	7	1					
		-	-	-	14	14	14	13	13	13	13	12	12	11		10	9	8	7	7						
		-	-	14	14	14	13	13	12	12	12	12	11	10		9	8	7	6							
		14	14	14	13	13	13	12	12	12	11	11	10	9		8	7	6	4	2						
		-	-	-	-	-	-	-	-	-	-	15	14	14		14	13	13	12	12	11	10	8	5		Shut-off 960 ft.
		-	-	-	-	-	-	-	-	-	16	14	14	14	13	13	13	12	12	12	10	9	7	2		
		-	-	-	-	-	-	-	-	15	14	14	14	14	13	13	13	12	12	11	10	8	6			
		-	-	-	-	-	-	-	15	14	14	14	14	13	13	13	12	12	11	11	10	8	5			
		-	-	-	-	-	-	15	14	14	14	14	13	13	13	13	12	12	11	11	8	8	5			
		-	-	-	-	-	15	14	14	14	14	13	13	13	13	12	12	11	11	9	7	4				
		-	-	-	14	14	14	14	14	13	13	13	13	12	12	12	11	11	10	10	8	5				
HP	PSI	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300												
		-	-	-	14	14	13	12	12	11	10	9	7	5												Shut-off 1330 ft.
		-	-	-	14	13	13	12	11	10	9	8	6													
		-	-	-	14	13	13	12	11	10	9	8	6													
		-	-	14	14	13	13	12	11	10	9	7	5													
		-	-	14	14	13	12	12	11	10	8	7	4													
		-	-	14	14	13	12	11	10	9	8	6														
		-	-	14	13	13	12	11	10	9	8	6														
		-	14	14	13	12	12	11	10	9	7	5														

Notes: 1. Performance shown does not include friction loss in the drop pipe.
2. All performance data is based on rated motor nameplate voltage.

APPENDIX D:

GROUNDWATER ANALYSIS REPORT SUMMARY

Bryan A. Stirrat & Associates

1422 N. 44th Street. Ste. 208

Alternate billing information:

Chain of Custody
Page ___ of ___

Prepared by:

ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Keith Johnson

Email: kjohnson@bas.com

Project Description: Cave Creek Landfill GW Testing

City/State Collected: Phoenix, AZ

Phone: (602) 267-0336
FAX: (602) 267-0446

Client Project #: 2007-0055

Lab Project #: BRYSTIPAZ-CAVECREE

Collected by (print): Paul Jackson

Site/Facility ID#:

P.O.#:

Collected by (signature): [signature]

Immediately Packed on Ice N___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: Jan. 2 2008

Email? __No X Yes
FAX? __No __Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	ALK 500mlHDPE-NoPres	Fl, NO2, NO3, SO4 125mlHDPE-NoPres	Metals 500mlHDPE-HNO3	TDS 250mlHDPE-NoPres	V8260 40mlAmb-HCl			Remarks/Contaminant	Sample # (lab only)
Mw-3		GW	~690'	12/21/07	1413	6	X	X	X	X	X			L325498	L325498-01
~~ ~~		~~GW~~				~~6~~	~~X~~	~~X~~	~~X~~	~~X~~	~~X~~				

Acctnum: BRYSTIPAZ (lab use only)
Template/Prelogin: T47628/ P230302
Cooler #: 12/17 [initials]
Shipped Via: FedEX 2nd Day

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other ___

Remarks:

pH 7.78 Temp 24.3
Flow ___ Other ___
FedEx 3289 1959
Spec. Cond: 486 µS

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐	Condition: (lab use only)
[signature]	12/21/07	1600			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 6.0 Bottles Received: 12	COC Seal Intact: __Y __N __NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) [signature]	Date: 12/24/07 Time: 900	pH Checked: [initials] NCF:

ENVIRONMENTAL
SCIENCE CORP.

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Keith Johnson
Bryan A. Stirrat & Associates
1422 N. 44th Street, Ste. 208

Phoenix, AZ 85008

Report Summary

Friday January 04, 2008

Report Number: L325498
Samples Received: 12/26/07
Client Project: 2007-0055

Description: Cave Creek Landfill GW Testing

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Travis Johnson
Travis Johnson, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Keith Johnson
Bryan A. Stirrat & Associates
1422 N. 44th Street, Ste. 208
Phoenix, AZ 85008

January 04, 2008

Date Received : December 26, 2007
Description : Cave Creek Landfill GW Testing

Sample ID : MW-3

Collected By : Paul Jackson
Collection Date : 12/21/07 14:13

ESC Sample # : L325498-01

Site ID :

Project # : 2007-0055

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
pH (On Site)	7.78		su			
Temperature (on-site)	24.3		Deg. C			
Specific Conductance	486.		us			
Fluoride	0.12	0.10	mg/l	9056	12/26/07	1
Nitrate	1.2	0.10	mg/l	9056	12/26/07	1
Nitrite	BDL	0.10	mg/l	9056	12/26/07	1
Sulfate	16.	5.0	mg/l	9056	12/26/07	1
Alkalinity	250	10.	mg/l	310.2	01/04/08	1
Dissolved Solids	340	10.	mg/l	2540C	12/28/07	1
Calcium	35.	0.50	mg/l	6010B	12/28/07	1
Iron	0.42	0.10	mg/l	6010B	12/28/07	1
Magnesium	26.	0.10	mg/l	6010B	12/28/07	1
Potassium	2.7	0.50	mg/l	6010B	12/28/07	1
Sodium	45.	0.50	mg/l	6010B	12/28/07	1
Volatile Organics						
Acetone	BDL	0.050	mg/l	8260B	01/03/08	1
Acrolein	BDL	0.050	mg/l	8260B	01/03/08	1
Acrylonitrile	BDL	0.010	mg/l	8260B	01/03/08	1
Benzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Bromobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Bromodichloromethane	BDL	0.0010	mg/l	8260B	01/03/08	1
Bromoform	BDL	0.0010	mg/l	8260B	01/03/08	1
Bromomethane	BDL	0.0050	mg/l	8260B	01/03/08	1
n-Butylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
sec-Butylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
tert-Butylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Carbon tetrachloride	BDL	0.0010	mg/l	8260B	01/03/08	1
Chlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Chlorodibromomethane	BDL	0.0010	mg/l	8260B	01/03/08	1
Chloroethane	BDL	0.0050	mg/l	8260B	01/03/08	1
2-Chloroethyl vinyl ether	BDL	0.050	mg/l	8260B	01/03/08	1
Chloroform	BDL	0.0050	mg/l	8260B	01/03/08	1
Chloromethane	BDL	0.0025	mg/l	8260B	01/03/08	1
2-Chlorotoluene	BDL	0.0010	mg/l	8260B	01/03/08	1
4-Chlorotoluene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2-Dibromo-3-Chloropropane	BDL	0.0050	mg/l	8260B	01/03/08	1
1,2-Dibromoethane	BDL	0.0010	mg/l	8260B	01/03/08	1
Dibromomethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2-Dichlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Keith Johnson
Bryan A. Stirrat & Associates
1422 N. 44th Street, Ste. 208
Phoenix, AZ 85008

January 04, 2008

Date Received : December 26, 2007
Description : Cave Creek Landfill GW Testing

Sample ID : MW-3

Collected By : Paul Jackson
Collection Date : 12/21/07 14:13

ESC Sample # : L325498-01

Site ID :

Project # : 2007-0055

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
1,3-Dichlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,4-Dichlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Dichlorodifluoromethane	BDL	0.0050	mg/l	8260B	01/03/08	1
1,1-Dichloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2-Dichloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1-Dichloroethene	BDL	0.0010	mg/l	8260B	01/03/08	1
cis-1,2-Dichloroethene	BDL	0.0010	mg/l	8260B	01/03/08	1
trans-1,2-Dichloroethene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2-Dichloropropane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1-Dichloropropene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,3-Dichloropropane	BDL	0.0010	mg/l	8260B	01/03/08	1
cis-1,3-Dichloropropene	BDL	0.0010	mg/l	8260B	01/03/08	1
trans-1,3-Dichloropropene	BDL	0.0010	mg/l	8260B	01/03/08	1
2,2-Dichloropropane	BDL	0.0010	mg/l	8260B	01/03/08	1
Di-isopropyl ether	BDL	0.0010	mg/l	8260B	01/03/08	1
Ethylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Hexachlorobutadiene	BDL	0.0010	mg/l	8260B	01/03/08	1
Isopropylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
p-Isopropyltoluene	BDL	0.0010	mg/l	8260B	01/03/08	1
2-Butanone (MEK)	BDL	0.010	mg/l	8260B	01/03/08	1
Methylene Chloride	BDL	0.0050	mg/l	8260B	01/03/08	1
4-Methyl-2-pentanone (MIBK)	BDL	0.010	mg/l	8260B	01/03/08	1
Methyl tert-butyl ether	BDL	0.0010	mg/l	8260B	01/03/08	1
Naphthalene	BDL	0.0050	mg/l	8260B	01/03/08	1
n-Propylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Styrene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1,1,2-Tetrachloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1,2,2-Tetrachloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1,2-Trichloro-1,2,2-trifluoro	BDL	0.0010	mg/l	8260B	01/03/08	1
Tetrachloroethene	BDL	0.0010	mg/l	8260B	01/03/08	1
Toluene	BDL	0.0050	mg/l	8260B	01/03/08	1
1,2,3-Trichlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2,4-Trichlorobenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1,1-Trichloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,1,2-Trichloroethane	BDL	0.0010	mg/l	8260B	01/03/08	1
Trichloroethene	BDL	0.0010	mg/l	8260B	01/03/08	1
Trichlorofluoromethane	BDL	0.0050	mg/l	8260B	01/03/08	1
1,2,3-Trichloropropane	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2,4-Trimethylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,2,3-Trimethylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
1,3,5-Trimethylbenzene	BDL	0.0010	mg/l	8260B	01/03/08	1
Vinyl chloride	BDL	0.0010	mg/l	8260B	01/03/08	1
Xylenes, Total	BDL	0.0030	mg/l	8260B	01/03/08	1
Surrogate Recovery						

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Keith Johnson
Bryan A. Stirrat & Associates
1422 N. 44th Street, Ste. 208
Phoenix, AZ 85008

January 04, 2008

Date Received : December 26, 2007
Description : Cave Creek Landfill GW Testing

Sample ID : MW-3

Collected By : Paul Jackson
Collection Date : 12/21/07 14:13

ESC Sample # : L325498-01

Site ID :

Project # : 2007-0055

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Toluene-d8	101.		% Rec.	8260B	01/03/08	1
Dibromofluoromethane	90.4		% Rec.	8260B	01/03/08	1
4-Bromofluorobenzene	131.		% Rec.	8260B	01/03/08	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.

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Reported: 01/04/08 14:55 Printed: 01/04/08 17:37

Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L325498-01	Bromomethane	J4
	Chloromethane	J4
	1,2-Dibromoethane	J4
	cis-1,3-Dichloropropene	J4
	trans-1,3-Dichloropropene	J4
	2,2-Dichloropropane	J4
	Methyl tert-butyl ether	J4
	1,1,2-Trichloro-1,2,2-trifluoroethane	J4
	4-Bromofluorobenzene	J1

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
01/04/08 at 17:37:38

TSR Signing Reports: 371

Sample: L325498-01 Account: BRYSTIPAZ Received: 12/26/07 09:00 Due Date: 01/04/08 00:00 RPT Date: 01/04/08 14:55
run nitrate and nitrite out of hold per Travis. MS 12/26