ATTACHMENT 5

ED_002020B_00022548-00001

SONORAN DESERT CONSERVATION PLAN

GIS Coverage Of Perennial Streams

Intermittent Streams

and

Areas of Shallow Groundwater

FINAL PROJECT REPORT

January 2000

Prepared by Pima Association of Governments for Pima County

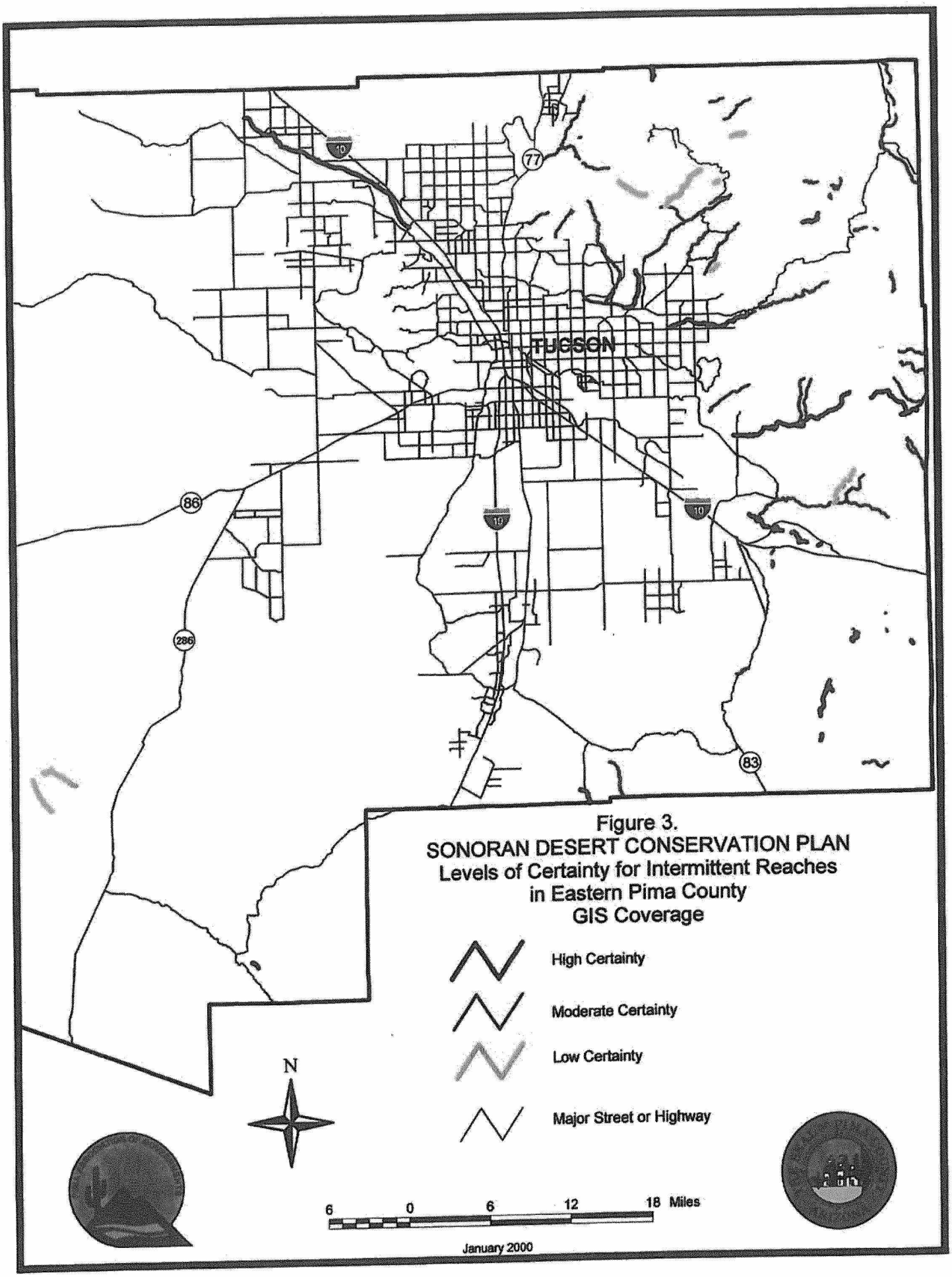

Figure 3.
SONORAN DESERT CONSERVATION PLAN
Levels of Certainty for Intermittent Reaches
in Eastern Pima County
GIS Coverage

crosses the Section where the USFS RASES survey was conducted (i.e., beginning of flow at the west edge and end of flow at north edge of Section 23). No other stream flow documentation was available.

Barrel Canyon

Barrel Canyon was determined to have intermittent flow based on field observations by Staffan Schorr in September and October 1999 and in previous years. Pools and flow were observed where Barrel Canyon crosses Hwy 83. Barrel Spring, located near the Davidson Canyon confluence, was listed as a perennial water source in a document by the Sonoran Institute (1999). A USFS RASES survey was conducted upstream of the flow observations in September 1999, however no flow or pools were observed. No other stream flow documentation was available.

Bear Canyon

Intermittent flow was well documented for lower Bear Canyon in the Sabino Canyon Recreation area by USFS RASES and Motschall (1976). Bob Magon and other Coronado National Forest staff confirmed that Bear Canyon flows for several months in most years in response to snowmelt. Magon reported that flow usually ends at the Wilderness Boundary. The upper portion of Bear Canyon was determined to have intermittent flow based on the description of flow by Coronado National Forest staff and by field observations at Sycamore Reservoir in spring and early summer 1998 and 1999 by Staffan Schorr. Beginning of flow was arbitrarily drawn near the headwaters. No other stream flow documentation was available for the upper portion of Bear Canyon.

Bear Creek

Bear Creek was determined to have intermittent flow based on a USFS RASES survey conducted in September 1998. Flow was not documented, however frogs and tadpoles were observed. The length of this intermittent reach was arbitrarily drawn as the length of the creek that crosses the Section where the USFS RASES survey was conducted (i.e., beginning of flow at the west edge and end of flow at east edge of Section 25). Bob Lefevre of the U.S. Forest Service suggested that if flow existed in a steep portion of a canyon, then flow would probably exist until the topography flattens out. The steep topography in Bear Creek, shown on the USGS topographic map, suggested that flow most likely would be present upstream of the reach where the RASES survey was conducted. Therefore, beginning of flow was extended upstream a small distance to a location where the canyon topography was no longer as steep. End of flow was drawn at the county line. Intermittent flow may exist in Bear Creek within Cochise County. Very little documentation was available for this creek.

Bingham Cienega

Bingham Cienega was determined to have perennial water based on observations by PAG staff and a report by Julia Fonseca (1998). PAG staff conducted quarterly water quality sampling at Bingham Cienega during 1999. Water was present throughout the year. The Nature Conservancy, Arizona Chapter confirmed this designation.

Bootlegger Spring

Bootlegger Spring was determined to have intermittent flow based on maps and personal field notes provided by Julia Fonseca. The observations were made in April 1994. The Sonoran Institute (1999) listed Bootlegger Spring as a perennial water source. No other stream flow documentation was available.

ED_002020B_00022548-00004

Julia Fonseca

From:	McGuire, Emmet <emcguire@usgs.gov>
Sent:	Thursday, September 21, 2017 12:26 PM
To:	Julia Fonseca
Cc:	Emmet McGuire; Robert A Fritzinger
Subject:	Re: photo question
Follow Up Flag:	Follow up
Flag Status:	Flagged

Hello Julia,

The date of the visit that included the photo you mention was Jan. 25, 2016 and not Jan 25, 2015. The date is incorrect on the photo because the camera date/time was mis-set when it was new. The photo does show algae in the pool of water surrounding the pressure transducer tip. I have noticed algae growing in the wetted channel during other visits as well.

Rainfall data collected by our precip sensors, including the one at our Barrel Canyon gage, is not published or provided after 120 days on NWIS-web. Our Precipitation data is considered temporary for maintenance of the gage and no QA-QC is performed.

However, when I query the PCRFCD Alert precip gage data during Jan 2016, the Empire Peak (4320) rain gage shows accumulation of about 1.38 inches from Jan 4 to Jan 8 2016 but nothing from Jan 8 to Jan 25 and the Cienega Creek near I-10 (4280) precip shows an accumulation of 1.85 inches of rain from Jan 4 to Jan 8 but nothing from Jan 8 to Jan 25.

If you have any questions or need more information please call me at my office number provided below.

Emmet McGuire
U.S. Geological Survey
Arizona Water Science Center, Tucson Field Office
520 North Park Avenue, Suite 221
Tucson, AZ 85719
(520) 670-6671 ext 284

On Wed, Sep 20, 2017 at 4:05 PM, Julia Fonseca <Julia.Fonseca@pima.gov> wrote:

Hi, Robert, or Emmett, I would like to ask your help in checking the attached photograph and caption for inaccuracies, especially concerning the date and rainfall, and whether that is algae. The photo I have is higher resolution and it looks like algae.

ED_002020B_00022548-00005

Barrel Canyon gage USGS 09484580
https://nwis.waterdata.usgs.gov/az/nwis/measurements/?site_no=09484580&agency_cd=USGS

Agency	Gage Code	Mst Number	Date and Time	Time Datum	Measurement Used?	Who	Measuring Agency	Gage Ht	Stream Flow (ft3/s)	Days since last rain at Barrel	Days since last rain at Empire	Measure Rated	Ht_va	discharge_va	Control	Flow Adj Code
USGS	9484580	1	1/22/2010 8:18	MST	Yes	TJP/ML	USGS	3.51	0.15			Poor	0	0.1	Clear	MEAS
USGS	9484580	2	1/22/2010 9:57	MST	Yes	TJP/ML	USGS	3.72	11.60			Poor	-0.02	0.3	Clear	MEAS
USGS	9484580	3	1/22/2010 11:48	MST	Yes	TJP/ML	USGS	3.73	13.00		15	Poor	0	0.3	Clear	MEAS
USGS	9484580	4	1/23/2010 9:53	MST	Yes	CEB	USGS	3.58	3.85		1	Poor	0	0.3	Unspecifed	MEAS
USGS	9484580	5	8/22/2012 10:48	MST	Yes	jdb	USGS	3.56	0.18			Poor	-0.02	0.2	Clear	MEAS
USGS	9484580	6	8/22/2012 10:57	MST	Yes	jdb	USGS	3.51	0.16	0	0	Poor	-0.02	0.2	Clear	MEAS
USGS	9484580	7	9/11/2012 13:44	MST	Yes	jdb	USGS	3.52	0.03	0	0	Poor	0	0.2	DebrisLight	BYPS
USGS	9484580	8	9/4/2015 12:34	MST	Yes	EHM	USGS	3.59	1.55	0	0	Fair	0	0.3	Unspecifed	MEAS
USGS	9484580	9	10/14/2015 17:30	MST	No	MG	USGS	3.53	0.02	5	23	Unspecified				UNSP
USGS	9484580	10	12/14/2015 14:46	MST	Yes	KTE	USGS		0.00	1	1	Unspecified			NoFlow	MEAS
USGS	9484580	11	1/8/2016 15:22	MST	Yes	EHM	USGS	3.59	3.28	0	0	Fair			DebrisLight	MEAS
USGS	9484580	12	1/10/2016 11:28	MST	Yes	KTE	USGS	3.59	0.24	0	0	Poor			Clear	MEAS
USGS	9484580	13	1/25/2016 10:06	MST	Yes	KTE	USGS	3.54	0.10	14	16	Poor			anged	MEAS
USGS	9484580	14	2/4/2016 12:06	MST	Yes	KTE	USGS	3.56	0.15	2	26	Fair			anged	MEAS
USGS	9484580	15	3/23/2016 11:23	MST	Yes	KTE	USGS		0.00	14	0	Unspecified			NoFlow	MEAS
USGS	9484580	16	5/11/2016 13:54	MST	Yes	KTE	USGS		0.00	28	28	Unspecified			NoFlow	MEAS
USGS	9484580	17	7/12/2016 12:40	MST	Yes	KTE	USGS		0.00	7	5	Excellent			NoFlow	MEAS
USGS	9484580	18	7/19/2016 13:05	MST	Yes	KTE	USGS		0.00	0	12	Excellent			NoFlow	MEAS
USGS	9484580	19	8/3/2016 14:14	MST	Yes	ehm	USGS	3.54	1.34	0	0	Poor	-0.01	0.5	anged	MEAS
USGS	9484580	20	10/20/2016 10:33	MST	Yes	KTE	USGS		0.00	12	19	Excellent			Clear	MEAS
USGS	9484580	21	1/10/2017 8:35	MST	Yes	CEB	USGS		0.00	7	8	Excellent			NoFlow	MEAS
USGS	9484580	22	4/28/2017 8:22	MST	Yes	EHM	USGS		0.00	25	30	Excellent			NoFlow	MEAS
USGS	9484580	23	5/5/2017 14:57	MST	Yes	mid	USGS		0.00	6	36	Excellent			NoFlow	MEAS
USGS	9484580	24	7/17/2017 12:31	MST	No	MID	USGS		0.01	0	0	Poor				MEAS
USGS	9484580	25	7/23/2017 10:32	MST	Yes	AMC	USGS	3.44	0.10	0	0	Fair	0	1	Clear	MEAS
USGS	9484580	26	7/28/2017 10:43	MST	Yes	VNH/MID	USGS	3.37	0.01	0	0	Poor	0	0.25	DebrisLight	MEAS
USGS	9484580	27	8/3/2017 10:13	MST	Yes	MG	USGS	3.6	1.80			Poor	0.03	0.4	Unspecifed	MEAS
USGS	9484580	28	8/3/2017 11:11	MST	Yes	MG	USGS	3.58	1.43	0	0	Poor	0	0.5	Unspecifed	MEAS
USGS	9484580	29	8/17/2017 12:50	MST	Yes	LH/EM	USGS	3.58	0.04	2	13	Good	0	0.25	Clear	MEAS

Color code: Flow amt by order of magnitude

Null data either missing data or duplicate day measurements

GROUNDWATER LEVEL MEASUREMENTS FOR WELLS, PIEZOMETERS, AND DRILL HOLES
Rosemont Copper Project

Well Location	Well Identifier	Reported Well Depth (feet)	Well Coordinates (NAD83, Zone 12) UTM-East (meters)	UTM-North (meters)	ADWR Registration Number	Land Surface Altitude (feet, msl)	Date of Measurement	Depth to Water (feet, bmp)[a]	Measuring Point Height (feet, als)[b]	Depth to Water (feet, bls)	Measuring Point Altitude (feet, msl)[c]	Water Level Altitude (feet, msl)	Data Source[d]	Remarks
							04/01/2010	128.98	3.20	125.78	5,233.24	5,104.26	V	
							04/23/2010	129.13	3.20	125.93	5,233.24	5,104.11	V	
							05/25/2010	129.78	3.20	126.58	5,233.24	5,103.46	V	
							06/22/2010	129.90	3.20	126.70	5,233.24	5,103.34	V	
							07/20/2010	130.09	3.20	126.89	5,233.24	5,103.15	V	
							09/23/2010	130.51	3.20	127.31	5,233.24	5,102.73	V	
							10/25/2010	131.45	3.20	128.25	5,233.24	5,101.79	V	
							12/01/2010	132.22	3.20	129.02	5,233.24	5,101.02	V	
							12/21/2010	131.76	3.20	128.56	5,233.24	5,101.48	V	
							01/21/2011	131.90	3.20	128.70	5,233.24	5,101.34	V	
							02/21/2011	132.40	3.20	129.20	5,233.24	5,100.84	V	
							03/24/2011	132.69	3.20	129.49	5,233.24	5,100.55	V	
							04/25/2011	132.70	3.20	129.50	5,233.24	5,100.54	V	
							05/23/2011	132.70	3.20	129.50	5,233.24	5,100.54	V	
							07/27/2011	133.19	3.20	129.99	5,233.24	5,100.05	V	
							08/24/2011	134.10	3.20	130.90	5,233.24	5,099.14	V	
							09/26/2011	134.77	3.20	131.57	5,233.24	5,098.47	V	
							11/02/2011	134.50	3.20	131.30	5,233.24	5,098.74	V	
							11/28/2011	134.32	3.20	131.12	5,233.24	5,098.92	V	
							01/03/2012	UTM	—	—	—	—	V	No access - road blocked
							01/30/2012	134.80	3.20	131.60	5,233.24	5,098.44	V	
							02/27/2012	135.19	3.20	131.99	5,233.24	5,098.05	V	Reset to 15-minutes for monitoring of new well
							03/22/2012	135.37	3.20	132.17	5,233.24	5,097.87	V	
							04/26/2012	135.51	3.20	132.31	5,233.24	5,097.73	V	
							05/23/2012	135.70	3.20	132.50	5,233.24	5,097.54	V	Reset to 12-hr
							06/25/2012	135.91	3.20	132.71	5,233.24	5,097.33	V	
							07/27/2012	135.70	3.20	132.50	5,233.24	5,097.54	V	
							11/27/2012	135.91	3.20	132.71	5,233.24	5,097.33	V	
							01/31/2013	135.77	3.20	132.57	5,233.24	5,097.47	V	
							04/08/2013	136.02	3.20	132.82	5,233.24	5,097.22	V	
							07/10/2013	136.46	3.20	133.26	5,233.24	5,096.78	V	
							10/08/2013	134.51	3.20	131.31	5,233.24	5,098.73	V	
							02/05/2014	136.69	3.20	133.49	5,233.24	5,096.55	V	
							04/22/2014	137.23	3.20	134.03	5,233.24	5,096.01	V	
							07/08/2014	136.92	3.20	133.72	5,233.24	5,096.32	V	
							11/05/2014	137.12	3.20	133.92	5,233.24	5,096.12	V	
(D-18-16) 01bda	DC-3A Alluvial well	30	531,800	3,529,486	55-914992	4,015.35	02/27/2013	Dry	2.50	—	4,017.85	—	V	
							02/19/2014	15.25 *	2.50	12.75	4,017.85	4,002.60 *	V	* - water level in alluvial well is questionable; casing in bedrock well may be cracked allowing water from lower aquifer to flow up into alluvial well. 1 - measured in field by Verdad
							04/22/2014	14.03	2.59 [1]	11.44	4,017.94	4,003.91	V	
							07/14/2014	13.32	2.59	10.73	4,017.94	4,004.62	V	
							10/13/2014	12.33	2.79	9.54	4,018.14	4,005.81	V	MP measured in field by Verdad on 12/23/2014
(D-18-16) 01bda	DC-3B Bedrock well	60	531,798	3,529,485	55-914991	4,015.35	02/27/2013	6.00	2.87	3.13	4,018.22	4,012.22	V	
							02/19/2014	12.37	2.87	9.50	4,018.22	4,005.85	V	pH=7.4; K=288; T=17.0
							04/22/2014	11.89	2.69 [1]	9.20	4,018.04	4,006.15	V	1 - measured in field by Verdad
							07/14/2014	12.62	2.69	9.93	4,018.04	4,005.42	V	
							10/13/2014	10.57	2.78	7.79	4,018.13	4,007.56	V	MP measured in field by Verdad on 12/23/2014
(D-18-16) 14dac	—	115(?)	530,772	3,525,510	55-633729(?)	4,215.00	02/18/2008	5.66	0.00	5.66	4,215.00	4,209.34	M&A	
							03/18/2008	6.58	0.00	6.58	4,215.00	4,208.42	V	
							04/24/2008	7.88	0.00	7.88	4,215.00	4,207.12	V	
							05/20/2008	9.00	0.00	9.00	4,215.00	4,206.00	V	
							06/16/2008	9.95	0.00	9.95	4,215.00	4,205.05	V	
							07/31/2008	2.21	0.00	2.21	4,215.00	4,212.79	V	
							08/26/2008	2.70	0.00	2.70	4,215.00	4,212.30	V	
							09/18/2008	1.92	0.00	1.92	4,215.00	4,213.08	V	
							10/27/2008	2.00	0.00	2.00	4,215.00	4,213.00	V	
							11/13/2008	2.08	0.00	2.08	4,215.00	4,212.92	V	
							12/12/2008	2.95	0.00	2.95	4,215.00	4,212.05	V	
							01/12/2009	2.20	0.00	2.20	4,215.00	4,212.80	M&A	

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							02/13/2009	1.70	0.00	1.70	4,215.00	4,213.30	M&A	
							03/26/2009	3.62	0.00	3.62	4,215.00	4,211.38	M&A	
							04/23/2009	4.40	0.00	4.40	4,215.00	4,210.60	M&A	
							05/21/2009	6.15	0.00	6.15	4,215.00	4,208.85	M&A	
							06/29/2009	8.23	0.00	8.23	4,215.00	4,206.77	V	
							07/21/2009	8.60	0.00	8.60	4,215.00	4,206.40	V	
							08/27/2009	10.00	0.00	10.00	4,215.00	4,205.00	V	
							09/30/2009	3.10	0.00	3.10	4,215.00	4,211.90	V	
							10/19/2009	4.41	0.00	4.41	4,215.00	4,210.59	V	
							11/19/2009	8.00	0.00	8.00	4,215.00	4,207.00	V	
							12/11/2009	9.27	0.00	9.27	4,215.00	4,205.73	V	
							01/29/2010	5.30	0.00	5.30	4,215.00	4,209.70	V	
							02/23/2010	4.90	0.00	4.90	4,215.00	4,210.10	V	
							03/19/2010	4.90	0.00	4.90	4,215.00	4,210.10	V	
							05/03/2010	7.25	0.00	7.25	4,215.00	4,207.75	V	
							05/25/2010	8.94	0.00	8.94	4,215.00	4,206.06	V	
							06/18/2010	9.78	0.00	9.78	4,215.00	4,205.22	V	
							07/29/2010	11.80	0.00	11.80	4,215.00	4,203.20	V	
							08/24/2010	2.84	0.00	2.84	4,215.00	4,212.16	V	
							09/28/2010	2.45	0.00	2.45	4,215.00	4,212.55	V	
							11/01/2010	5.41	0.00	5.41	4,215.00	4,209.59	V	
							12/02/2010	6.52	0.00	6.52	4,215.00	4,208.48	V	
							12/22/2010	6.70	0.00	6.70	4,215.00	4,208.30	V	
							01/28/2011	7.12	0.00	7.12	4,215.00	4,207.88	V	
							02/18/2011	12.50	0.00	12.50	4,215.00	4,202.50	V	
							04/04/2011	11.30	0.00	11.30	4,215.00	4,203.70	V	
							05/02/2011	10.02	0.00	10.02	4,215.00	4,204.98	V	
							06/02/2011	10.17	0.00	10.17	4,215.00	4,204.83	V	
							07/26/2011	16.00	0.00	16.00	4,215.00	4,199.00	V	
							08/29/2011	15.82	0.00	15.82	4,215.00	4,199.18	V	
							09/21/2011	6.10	0.00	6.10	4,215.00	4,208.90	V	
							10/28/2011	2.92	0.00	2.92	4,215.00	4,212.08	V	
							11/28/2011	2.71	0.00	2.71	4,215.00	4,212.29	V	
							12/20/2011	3.66	0.00	3.66	4,215.00	4,211.34	V	
							01/27/2012	4.55	0.00	4.55	4,215.00	4,210.45	V	
							02/29/2012	4.86	0.00	4.86	4,215.00	4,210.14	V	
							03/22/2012	5.30	0.00	5.30	4,215.00	4,209.70	V	
							07/27/2012	2.72	0.00	2.72	4,215.00	4,212.28	V	
							11/20/2012	4.20	0.00	4.20	4,215.00	4,210.80	V	
							01/31/2013	UTM	0.00	UTM	4,215.00	UTM	V	UTM (unable to measure)- road construction, no access to well
							04/08/2013	8.25	0.00	8.25	4,215.00	4,206.75	V	
							07/11/2013	*	0.00	*	4,215.00		V	* no water level measurement for this well in July
							10/11/2013	6.43	0.00	6.25	4,215.00	4,206.75	V	
							01/23/2014	6.83	0.00	6.83	4,215.00	4,208.17	V	
							04/21/2014	7.35	0.00	7.35	4,215.00	4,207.65	V	
							07/14/2014	4.92	0.00	4.92	4,215.00	4,210.08	V	
							11/11/2014	4.82	0.00	4.82	4,215.00	4,210.18	V	
(D-18-16) 15aaa	RP-7	250	529,460	3,526,589	55-908889	4,285.49	07/27/2008	39.19	-0.42	39.61	4,285.07	4,245.88	M&A	
							08/06/2008	41.07	-0.42	41.49	4,285.07	4,244.00	M&A	Transducer zero'ed to 41.07 from 41.40
							09/15/2008	36.27	-0.42	36.69	4,285.07	4,248.80	M&A	
							10/30/2008	36.65	-0.42	37.07	4,285.07	4,248.42	M&A	
							12/04/2008	36.96	-0.42	37.38	4,285.07	4,248.11	M&A	
							12/19/2008	37.18	-0.42	37.60	4,285.07	4,247.89	M&A	
							12/30/2008	37.20	-0.42	37.62	4,285.07	4,247.87	M&A	
							01/09/2009	37.25	-0.42	37.67	4,285.07	4,247.82	M&A	
							01/21/2009	37.40	-0.42	37.82	4,285.07	4,247.67	M&A	
							03/25/2009	37.84	-0.42	38.26	4,285.07	4,247.23	M&A	
							05/08/2009	38.22	-0.42	38.64	4,285.07	4,246.85	M&A	
							06/30/2009	38.76	-0.42	39.18	4,285.07	4,246.31	V	
							07/20/2009	39.99	-0.42	40.41	4,285.07	4,245.08	V	
							08/24/2009	39.39	-0.42	39.81	4,285.07	4,245.68	V	
							09/16/2009	39.50	-0.42	39.92	4,285.07	4,245.57	V	
							10/18/2009	39.69	-0.42	40.11	4,285.07	4,245.38	V	
							11/23/2009	40.07	-0.42	40.49	4,285.07	4,245.00	V	
							12/17/2009	39.58	-0.42	40.00	4,285.07	4,245.49	V	

GROUNDWATER LEVEL MEASUREMENTS FOR WELLS, PIEZOMETERS, AND DRILL HOLES
Rosemont Copper Project

Well Location	Well Identifier	Reported Well Depth (feet)	Well Coordinates (NAD83, Zone 12) UTM-East (meters)	UTM-North (meters)	ADWR Registration Number	Land Surface Altitude (feet, msl)	Date of Measurement	Depth to Water (feet, bmp)[a]	Measuring Point Height (feet, als)[b]	Depth to Water (feet, bls)	Measuring Point Altitude (feet, msl)[c]	Water Level Altitude (feet, msl)	Data Source[d]	Remarks
(D-18-16) 15dcc	BC-2A Alluvial well	10	528,781	3,525,139	55-914990	4384.16 [1]	02/27/2013	Dry	3.34	—	4,386.98	—	V	Water level measurement suspect; pressure transducer indicates water in well. ([1] - Land elevation was measured at ground surface as on **** 2013).
							02/27/2013	7.37* PT	3.34		4,386.98		Pressure Transducer	
							03/20/2014	4.34	3.10	1.24	4,386.98	4,382.64	Kherther	New Measuring point length (stream bed is eroding)
[1] - surveyed on ****							04/21/2014	6.23	3.68	2.55	4,386.98	4,380.75	V	[1]: measured in field by Verdad
							07/14/2014	3.78	3.68	0.10	4,386.98	4,383.20	V	
							10/10/2014	3.52	3.05	0.47	4,386.98	4,383.46	V	MP measured in field by Verdad on 12/12/2014
(D-18-16) 15dcc	BC-2B Bedrock well	121	528,779	3,525,138	55-914989	4384.25 [1]	02/27/2013	43.00	2.95	40.05	4,386.81	4,343.81	V	[1]: measured in field by Verdad
							04/21/2014	48.13	3.29	44.84	4,386.81	4,383.52	V	
							07/14/2014	48.29	3.29	45.00	4,386.81	4,338.52	V	
							10/10/2014	77.45	3.43	74.02	4,386.81	4,309.36	V	MP measured in field by Verdad on 12/12/2014
(D-18-16) 20dbc1	HC-4A	640	525,545	3,524,038	55-909049	4,973.19	07/27/2008	78.27	-0.54	78.81	4,972.65	4,894.38	M&A	
							08/08/2008	76.4	-0.54	76.94	4,972.65	4,896.25	M&A	
							09/04/2008	75.36	-0.54	75.90	4,972.65	4,897.29	M&A	
							09/15/2008	75.33	-0.54	75.87	4,972.65	4,897.32	M&A	
							10/30/2008	74.82	-0.54	75.36	4,972.65	4,897.83	M&A	
							12/04/2008	74.65	-0.54	75.19	4,972.65	4,898.00	M&A	
							12/19/2008	74.75	-0.54	75.29	4,972.65	4,897.90	M&A	
							12/30/2008	74.70	-0.54	75.24	4,972.65	4,897.95	M&A	
							01/09/2009	74.70	-0.54	75.24	4,972.65	4,897.95	M&A	
							01/21/2009	74.69	-0.54	75.23	4,972.65	4,897.96	M&A	
							03/26/2009	74.72	-0.47	75.19	4,972.72	4,898.00	M&A	New measuring point
							05/07/2009	74.80	-0.47	75.27	4,972.72	4,897.92	M&A	
							06/24/2009	75.34	-0.47	75.81	4,972.72	4,897.38	V	
							07/21/2009	75.65	-0.47	76.12	4,972.72	4,897.07	V	
							08/18/2009	75.44	-0.47	75.91	4,972.72	4,897.28	V	
							09/21/2009	75.78	-0.47	76.25	4,972.72	4,896.94	V	
							10/26/2009	76.05	-0.47	76.52	4,972.72	4,896.67	V	
							11/23/2009	76.21	-0.47	76.68	4,972.72	4,896.51	V	
							12/21/2009	76.07	-0.47	76.54	4,972.72	4,896.65	V	
							01/27/2010	76.07	-0.47	76.54	4,972.72	4,896.65	V	
							02/22/2010	76.15	-0.47	76.62	4,972.72	4,896.57	V	
							04/01/2010	74.09	-0.47	74.56	4,972.72	4,898.63	V	
							04/26/2010	73.51	-0.47	73.98	4,972.72	4,899.21	V	
							05/24/2010	71.82	-0.47	72.29	4,972.72	4,900.90	V	
							06/23/2010	73.00	-0.47	73.47	4,972.72	4,899.72	V	
							07/29/2010	71.07	-0.47	71.54	4,972.72	4,901.65	V	
							08/27/2010	72.23	-0.47	72.70	4,972.72	4,900.49	V	
							09/28/2010	72.75	-0.47	73.22	4,972.72	4,899.97	V	
							10/26/2010	72.53	-0.47	73.00	4,972.72	4,900.19	V	
							11/23/2010	72.69	-0.47	73.16	4,972.72	4,900.03	V	
							12/22/2010	72.70	-0.47	73.17	4,972.72	4,900.02	V	
							01/21/2011	72.82	-0.47	73.29	4,972.72	4,899.90	V	
							02/22/2011	72.70	-0.47	73.17	4,972.72	4,900.02	V	
							03/29/2011	72.79	-0.47	73.26	4,972.72	4,899.93	V	
							04/27/2011	72.97	-0.47	73.44	4,972.72	4,899.75	V	
							05/24/2011	73.00	-0.47	73.47	4,972.72	4,899.72	V	
							07/27/2011	73.55	-0.47	74.02	4,972.72	4,899.17	V	
							08/24/2011	72.98	-0.47	73.45	4,972.72	4,899.74	V	
							09/26/2011	73.35	-0.47	73.82	4,972.72	4,899.37	V	
							11/02/2011	73.76	-0.47	74.23	4,972.72	4,898.96	V	
							11/28/2011	73.73	-0.47	74.20	4,972.72	4,898.99	V	
							01/03/2012	73.87	-0.47	74.34	4,972.72	4,898.85	V	
							01/31/2012	73.94	-0.47	74.41	4,972.72	4,898.78	V	
							02/27/2012	74.34	-0.47	74.81	4,972.72	4,898.38	V	Pumped 2/16
							03/20/2012	74.41	-0.47	74.88	4,972.72	4,898.31	V	
							04/20/2012	74.60	-0.47	75.07	4,972.72	4,898.12	V	
							05/24/2012	74.74	-0.47	75.21	4,972.72	4,897.98	V	
							06/25/2012	75.00	-0.47	75.47	4,972.72	4,897.72	V	
							07/26/2012	75.11	-0.47	75.58	4,972.72	4,897.61	V	
							11/28/2012	76.01	-0.47	76.48	4,972.72	4,896.71	V	