

AP - 27

STAGE 2 WORKPLANS

Date:

6-19-13

Hansen, Edward J., EMNRD

From: Katie Jones <kjones@riceswd.com>
Sent: Wednesday, June 19, 2013 12:09 PM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; 'Tim Reed'; Laura Pena
Subject: ROC - BD E-15 (AP-27) Groundwater Recovery *UPDATED*

Mr. Hansen,

According to the NMOCD approved Chloride Remediation Report, groundwater recovery began from MW-2R at the BD E-15 (AP-27) site on June 28, 2012. A total of 1,332 bbls or 55,944 gallons of water has been recovered. ROC has tried several types of pump, which have all failed due to the fine silt and clay and lack of underground water flow to recharge the well. A description of the aquifer from Arc Environmental is attached. Due to the inability to pump from the wells located on this site, ROC requests to remove the remaining volume of water, approximately 279,160 gallons, from the existing recovery systems located at BD O-23 vent and O-23-1 vent. This would equate to the total volume of 335,104 gallons and equivalent chloride mass. A plat showing the E-15 site in relation to the O-23 sites is attached. If you have any questions or require any additional information, please contact Hack Conder at (575)631-6432.

Thank you.

Katie Jones
Environmental Project Manager
RICE Operating Company

Hansen, Edward J., EMNRD

From: Katie Jones <kjones@riceswd.com>
Sent: Monday, June 17, 2013 2:45 PM
To: Hansen, Edward J., EMNRD
Cc: Hack Conder; Tim Reed; Laura Pena
Subject: ROC - BD E-15 (AP-27) Groundwater Recovery
Attachments: BD E-15 Chloride Remediation Report.pdf; ROC - BD E-15 (AP-27) Aquifer Description.pdf; ROC - BD E-15 (AP-27) In Relation to BD O-23 and O-23-1.pdf

Mr. Hansen,

According to the NMOCD approved Chloride Remediation Report, groundwater recovery began from MW-2R at the BD E-15 (AP-27) site on June 28, 2012. A total of 1,332 bbls or 55,944 gallons of water has been recovered. ROC has tried several types of pump, which have all failed due to the fine silt and clay and lack of underground water flow to recharge the well. A description of the aquifer from Arc Environmental is attached. Due to the inability to pump from the wells located on this site, ROC requests to remove the remaining volume of water, approximately 279,160 gallons, from the existing recovery systems located at BD O-23 vent and O-23-1 vent. This would equate to the total volume of 335,104 gallons. A plat showing the E-15 site in relation to the O-23 sites is attached. If you have any questions or require any additional information, please contact Hack Conder at (575)631-6432.

Thank you.

Katie Jones
Environmental Project Manager
RICE Operating Company

May 30, 2013

FIELD NOTES

The following summarizes the field activities at the RICE BD E-15, Lea County T22S, R37E, Sec 15 Unit Letter E for the past year:

- There are seven wells at the site, six 2-inch and one 4-inch. A Solinst Water Level Meter is used during each sampling event to check the depth to water prior to pumping and bailing the wells. The water level in the several of the wells (monitor well #1, #2R, #3, #7 and #8) does not change significantly between sampling events and the recharge rate of the wells after purging indicates there is little to no influence from an existing underground water flow or aquifer. The 2-inch wells are pumped at 0.25 gallons per minute until the wells will no longer pump. The wells are then bailed dry with a bailer. The wells recover to within 10 percent of the original depth in 2 to 4 hours. Purging the well dry is done three times before allowing the well to recover. Following well recovery the wells are sampled with a bailer. The wells continue to produce a fine clay silt material during each sampling event.
- Monitor well #2R was reentered changing it from a 2 inch to a 4 inch well and deepened to increase the water column volume. The reconstruction of the well was necessary so it could be used as a recovery well for the site. Several pump products have been used to attempt to pump the well. The pumps do not perform and fail due to the fine silt and clay and lack of underground water flow to recharge the well.
- The site is located in the eastern Eunice Plain area of Lea County, which is underlain by a hard caliche surface and is covered by a thin layer of reddish-brown dune sand. The dominant vegetation is bear grass, mesquite and grama grass. Cattle ranchers and oil production activities currently use the area.
- In this arid region the rate of recharge is very slow due to small rainfall amounts, the porosity of the formation consisting of low permeable rock and a presence of clay, which leaves sediments that are thinly saturated or dry. There is little underground flow of water in the area, again due to the formation.

Sincerely,
Arc Environmental
Rozanne Johnson

Rozanne Johnson

Electronic Copy: Hack Conder
 Katie Jones

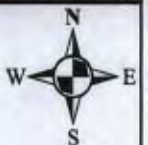
BD E-15 Leak in Relation to BD O-23 and O-23 vent



BD E-15 LEAK

LEGALS: UL/E sec. 15
T-22-S R-37-E
LEA COUNTY, NM

Case #: AP-027



0 3,500 7,000
Feet

Drawing date: 5/6/13
Drafted by: L. Weinheimer

ROC BD Q-23-1 vent													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
RW-1	38.15	85.5	30.8	95	2/14/2011	4700	8520	<0.001	<0.001	<0.001	<0.003	310	clear no odor
RW-1	38.24	85.5	30.7	95	4/19/2011	5550	9260	<0.001	<0.001	<0.001	<0.003	377	clear no odor
RW-1	38.34	85.5	30.7	95	7/28/2011	6600	9700	<0.001	<0.001	<0.001	<0.003	317	clear no odor
RW-1	38.46	85.5	30.6	95	10/20/2011	6700	8250	<0.001	<0.001	<0.001	<0.003	280	clear no odor
RW-1	38.53	85.5	30.5	95	1/26/2012	5000	7960	<0.001	<0.001	<0.001	<0.003	355	clear no odor
RW-1	XXX	85.5	XXX	Running	6/8/2012	4450	8100	<0.001	<0.001	<0.001	<0.003	293	clear no odor
RW-1	XXX	85.5	XXX	running	7/20/2012	4300	8100	<0.001	<0.001	<0.001	<0.003	465	clear no odor
RW-1	XXX	85.5	XXX	running	10/18/2012	4050	7440	<0.001	<0.001	<0.001	<0.003	335	clear no odor
RW-1	XXX	85.5	XXX	running	1/17/2013	4550	7270	<0.001	<0.001	<0.001	<0.003	236	clear no odor

ROC BD Q-23-1 vent													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
RW-2	38.81	81.2	27.6	90	4/19/2011	4500	7620	<0.001	<0.001	<0.001	<0.003	353	clear no odor
RW-2	38.94	81.2	27.5	90	7/28/2011	5500	8830	<0.001	<0.001	<0.001	<0.003	287	clear no odor
RW-2	39.03	81.2	27.4	90	10/20/2011	5100	8560	<0.001	<0.001	<0.001	<0.003	278	clear no odor
RW-2	39.04	81.2	27.4	90	1/26/2012	5050	8230	<0.001	<0.001	<0.001	<0.003	328	clear no odor
RW-2	XXX	81.2	XXX	Running	6/8/2012	5000	9210	<0.001	<0.001	<0.001	<0.003	331	clear no odor
RW-2	XXX	81.2	XXX	running	7/20/2012	5000	10000	<0.001	<0.001	<0.001	<0.003	472	clear no odor
RW-2	XXX	81.2	XXX	running	10/18/2012	5400	9660	<0.001	<0.001	<0.001	<0.003	356	clear no odor
RW-2	XXX	81.2	XXX	running	1/17/2013	5650	9760	<0.001	<0.001	<0.001	<0.003	195	clear no odor

ROC BD O-23 Vent													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
RW-1	44.76	91	30.1	95	2/14/2011	7100	12200	<0.001	<0.001	<0.001	<0.003	409	clear no odor
RW-1	44.83	91	30	90	4/19/2011	9400	15000	<0.001	<0.001	<0.001	<0.003	310	clear no odor
RW-1	44.395	91	29.9	90	7/28/2011	10200	14600	<0.001	<0.001	<0.001	<0.003	354	clear no odor
RW-1	44.97	91	29.9	90	10/19/2011	10800	16700	<0.001	<0.001	<0.001	<0.003	295	clear no odor
RW-1	44.94	91	29.9	90	1/25/2012	7400	12900	<0.001	<0.001	<0.001	<0.003	484	clear no odor
RW-1	xxx	91	xxx	running	6/8/2012	7000	12300	<0.001	<0.001	<0.001	<0.003	333	clear no odor
RW-1	XXX	91	XXX	running	7/20/2012	7500	12800	<0.001	<0.001	<0.001	<0.003	478	clear no odor
RW-1	XXX	91	XXX	running	10/18/2012	6800	11900	<0.001	<0.001	<0.001	<0.003	384	clear no odor
RW-1	XXX	91	XXX	running	1/16/2013	8300	14200	<0.001	<0.001	<0.001	<0.003	344	clear no odor

ROC BD O-23 Vent													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
RW-2	46.12	90.33	28.7	90	4/19/2011	7400	12000	<0.001	<0.001	<0.001	<0.003	419	clear no odor
RW-2	46.24	90.33	28.7	90	7/28/2011	10200	14600	<0.001	<0.001	<0.001	<0.003	354	clear no odor
RW-2	46.33	90.33	28.6	90	10/19/2011	5700	9380	<0.001	<0.001	<0.001	<0.003	137	clear no odor
RW-2	46.34	90.33	28.6	90	1/25/2012	4200	7410	<0.001	<0.001	<0.001	<0.003	320	clear no odor
RW-2	XXX	90.33	XXX	Running	6/8/2012	10000	17500	<0.001	<0.001	<0.001	<0.003	344	clear no odor
RW-2	XXX	90.33	XXX	running	7/20/2012	10200	18700	<0.001	<0.001	<0.001	<0.003	403	clear no odor
RW-2	XXX	90.33	XXX	running	10/18/2012	6600	11800	<0.001	<0.001	<0.001	<0.003	394	clear no odor
RW-2	XXX	90.33	XXX	running	1/16/2013	6900	11900	<0.001	<0.001	<0.001	<0.003	316	clear no odor

ROC BD Junction Box E-15													
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2R	76.94	120.3	28.2	90	11/1/2011	XXX	XXX	XXX	XXX	XXX	XXX	XXX	clear no odor
2R	76.87	120.3	28.2	90	1/30/2012	6800	10300	<0.001	<0.001	<0.001	<0.003	362	clear no odor
2R	76.92	120.3	28.2	90	5/2/2012	6000	10800	<0.001	<0.001	<0.001	<0.003	422	clear no odor
2R	XXX	120.3	0	pumping	7/24/2012	4900	8520	<0.001	<0.001	<0.001	<0.003	340	clear no odor
2R	XXX	120.3	0	pumping	10/22/2012	2140	4310	<0.001	<0.001	<0.001	<0.003	209	clear no odor
2R	Solar Pump in the Well	120.3	0	pumping	1/22/2013	2180	4420	<0.001	<0.001	<0.001	<0.003	347	clear no odor