REFERENCE 6

ecology and environment, inc.

International Specialists in the Environment

Job Number

Freeman Ground Water Contamination
Freeman, WA
TAA 13-07-0005
Proj. Code: EE-004536-0001-07550
Logbook 1 of 3
(1) Site Manager's logbook
(2) Geologist's Logbook
(3) Analytical Instrument logbook

E & E Job Number EE-004536-0001-01 TTO

Telephone Code Number

Site Name Freeman Ground Water Contamination

City/State Rockford, WA

TDD 13-07-0003

PAN

SSID

Start / Finish Date /

Book ____ of ____

E & E Emergency Response Center: (716) 684-8940
E & E Corporate Center: (716) 684-8060
MEDTOX Hotline: (501) 370-8263
E & E Safety Director (Home): (716) 655-1260

11/20/13 Freeman Groundwater Contamination 13-07-0005

0600 Leave for Airport

1000 Leave Seattle

1110 Arrive Spokane

1150 Arrive Freeman, meet w/ Mark Lally w/ Freeman School District

1205 View (b) (6) well. Well monument is not locked and entire cap lifts off. Plastic 6" casing that is loose are easy to move back and forth in the monument, water sounds shallow.

(b) (6) well is about 20' higher in the center.

An air stripping system was installed on the primary school district well and placed into operation in late August or early September.

3 rounds sampling with samples collected both prior to and after treatment. Only one set of results are in so far

View school district well. No sampling portal at this location.

View (b) (6) well. Well is ~~for~~ at no longer hooked to power, hand faucet does not operate.

View (b) (6) house from near (b) (6) well.

1300 View school district air stripping and chlorination system.

1305 School District well system has a backup ~~pump~~ pump power supply with above ground diesel tank in well house to supply water during power outages.

Often snow on ground from Nov to late February although some years there is no snow.

1315 Depart School District property

1350 meet Nick Broemeling with CHS, Mark Lappam with CHS Primeland (Primeland is a division of CHS).

CHS has about a 99 yr lease with UPRR. Amt knows

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When lease was picked up from UPRR, CHS took control of property from Rockford Grain Growers in 1994. Joined by Tom Herres with CHS, Primeland.
Grain elevator facility was built in 1980s and was originally operated by Rockford Grain Growers, a co-operative. RGG purchased by Cenex Supply and marketing, the in July 1994.
Used seasonally for grain storage. Harvest runs from August 10 about Sept 20th depending on harvest days for any given year
8 14,000 bushels bins, 2 60,000 bins, and 1 114,000 bushel bins, 2600(2) bushel bins.
Once grain is collected it can take until about march until silos/bins are empty. Grain is segragated into bins based on type.
Treat grain with diacon for insects and pests during harvest since 2010. Diacon is sprayed onto grain as it arrives. Immediately following dumping from harvest trucks to the receiving pit the grain is augered to silo/bin distribution system.
Treatment occurs in first ~~auger~~ elevator bucket leg.
Phosphide Phosfume / Phostoxin (aluminum phosphide based compounds). This is a pellet that reacts with air, temp, and moisture to create a gas that kills pests. Bin contents are turned over a couple of times to ensure off gasing of pellets is complete. Residual, exert, non toxic ash is left behind once all aluminum phosphide has been activated and released in gaseous ~~form~~ at form. Turning over of grain contents is carried out by moving grain from one bin to another. Grain itself can have a temp of up

Jack Ead

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to 90° as it is received. Since pests breed faster at warmer temps, its desirable to cool grain down by discharging some grain out the bottom of the ~~bin~~ bin to create in essence a sink hole in grain pile so cool night air can lower temp, preferably to about 50° if possible since pests don't reproduce at this temp.

Diacon does not kill pests, rather it prevents them from breeding. Live pests that arrive with grain remain alive. Grain in bins is checked at least once per month to see if a pest problem has developed. If so, the grain would be treated with a fumigant (aluminum phospide) if it were needed. So far, this has not been necessary at this location.

Aluminum Phosphide has been used from at least early 2000s. Nick will send historical info relating to grain pest treatment at this location, such as he has this information. Not much may be available prior to 2000 or ownership in 1994.

Grain is delivered via an auger driven system along top of bins to bins. A similar auger based system is used to move grain out from bottom of bins to loading trucks. Rail cars are no longer used at this location ship grain out. Use of the rail line is suspected to have ceased in about 2000 or 2001.

No chemicals, herbicides, pesticides are stored on site. There are no ASTs or USTs.

Diacon is applied in solution at 1 gal per 32,000 bushels.

Semi transport is more economical than rail.

Augers are powered by electric motors.

Linda E Adams

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Concrete aprons are around each bay. Receiving area has old weathered asphalt or simply gravel.

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Utility Locate and camera survey awarded to Applied Prof. Serv. (APS)
Phoned Ben Foster at APS to discuss project logistics. Field crew will be ~~Dan Wright and Tony Hannah~~ 2A 4/14/14 2A 4/14/14. Chris ~~Ch~~ Lemoine (camera) 425-864-2677.
Items discussed:
✓ meeting time is 8:00 am on 4/21 for HASP mtg
✓ Locate at Cenex & mutual mat'l prop.
✓ Camera survey at marlow well. video survey

4/15/14
Phoned 811 U-Arg Line
Ticket #s are:
14092969 for cenex property
14092993 for mutual materials property

4/17/14
must be at mutual mt'l property at 9:00 am wednesday

Linda E Ad

4/20/14 Freeman GW Site 13-07-0005

1000 Leave for Warehouse
1200 meet Field team at warehouse to load supplies.
1945 Arrive Hotel Ader only
2030 Geoprobe, Lab, SUV arrive Hotel. Field Team is:
Linda Ader (LA)
Jeff Fetters (JF)
Al Jensen (AJ)
Chris Whitehead (CW)
David Burford (DB)
14603 Hwy 27 IS Lenex

Linda Ader

4/21/14 Freeman GW Cont 13-07-0005

0700 Leave hotel to get ice + stress drinks and head to site.

0730 Arrive site, meet with Kirk Lally. Lab is being left at high school

0800 meet Josh & Chris with Applied Professional Services. (Locators and camera crew).

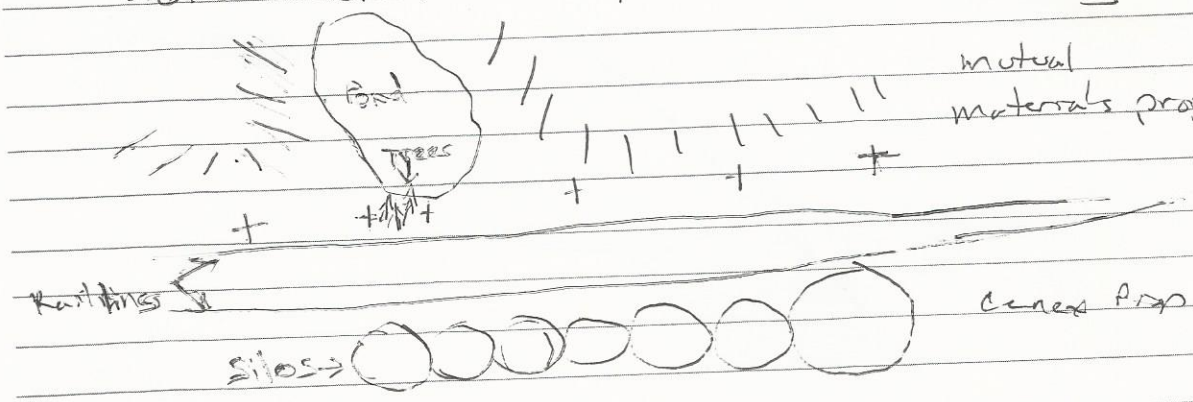
0820 Locators are clearing boring drilling area

0830 Health & Safety meeting. Day is overcast and ~50° F.

Discuss today's activities including drilling around scale house, sample subsurface soils & GW if encountered. Camera survey of school well.

Care around Hwy 27. Stay clear of railroad tracks by 25'. Care around Geoprobe. Ear protection, Level D at all times.

0900 Locators are done clearing property at Cenex. Go over to mutual materials property. There is no way to drive to drilling locations. We walk to clear five spots for hand augering.



1000 Arrive at School District well for camera survey. At 35' from top of casing a broken seal or crack that encompasses full diameter of casing is ~~obse~~ observed. From this point

Linda E Ad

4/21/14 Freeman GW Cont 13-07-005

down, purple streaks are on the casing
A second failed joint is at 57½' from TOC
The top of the water table is at ~65½' ~~bgs~~ from TOC
At 74½' bgs is another joint from TOC
At 94½' bgs is another joint from TOC
At 113½' bgs is another joint from TOC
Bottom of well is at 132½' from TOC
Casing extends to bottom of well
There is another joint at 20½' from TOC
At every joint is purple stroking and corrosion of casing indicating they are not sealed.
Camera survey went down one side of casing and up the other so entire casing diameter was viewed and recorded on video.
1050 APS leaves site.
1100 Show Monica Tonel the field lab. Monica arrived at 1000.
1125 Collect Trip Blank sample TB01WT
1128 Collect Trip Blank sample TB02WT
1134 Collect Trip Blank sample TB03WT
1215 Break for lunch.
1300 Arrive back on site. Three borings were drilled this morning with two samples collected from each: one just above clay layer and one 1' into clay. Clay is being encountered at ~8' bgs.
See drillers log for sample descriptions and times.
Samples consist on ~~two~~ 2oz jar and 5 core-n-ones.
1 2-oz jar and 2 core-n-ones for field lab.
1 2oz jar and 3 core-n-ones for Fixed lab.
1430 Brought the 1st 10 samples up to the lab. Fixed lab samples are in freezer set up at school with lab.
All samples iced immediately following sample collection.

[signature]

4/21/14 Freeman GW Cont 13-07-0025

1249 Geoprobe side door on work bay clipped metal siding of scale house and tore sheet metal open. Monica, Ahroov, and Tom Heires with Primelard were notified.

1630 Brought 5 more samples up to lab.

1800 LA, JF, AJ, & Monica Tonel (MT) leave site. CW & DB stay to analyzed samples.

2100 CW & DB finish at Lab. Four samples analyzed. All results are ND.

Time: LA, JF, AJ - 10.5 hrs
CW, DB - 14 hrs

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0700 - Leave Hotel to get ice and head to site
Today is overcast and raining, ~50°F,
CW & DB to finish analyzing samples
collected yesterday.
LA, AJ & JF to collect sampling from
school district wells while chemists analyze
yesterday's samples.
Health & Safety mtg:
- Trip/Slip/Fall
- Care around Geoprobe, stop work if lightening
- Care around traffic
- wear hard hat & also earplugs around Geoprobe.
- Stay warm. Take a break to warm up if too cold.

0860 Head over to (b) (6) well to sample it.
Water depth is 67.32' from the top of the exterior metal casing.
Decon pump and calibrate Horiba, EPA # 95153
0910 Begin purging out of service school district well, DW01. Initial flow rate is 0.6 L/s, turned pump down
Water Quality Parameters: Flow rate is 0.5 L/m

Time	Temp	pH	ORP	Cond	Turb	DO	water level
0915	10.15°	5.99	236mV	0.323	51.4	6.16	67.37'
0920	10.31°	6.09	209	0.325	22.0	6.83	67.37'
0925	10.30°	6.23	213	0.325	0.8	5.88	67.37'
0930	10.35°	6.30	213	0.325	0.0	5.76	67.37'
0935	10.31°	6.38	220	0.325	4.3	5.86	67.37'

0940 Collect sample DW01, Pump placed 1' above the bottom of the well.

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0955 Collect RI01WT as a rinsate of gw monsoon pump.
Depth of well from north side of metal exterior casing is 135.85'.
135.65' is depth of well from ground surface.
1030 Go to sample school district's primary drinking water supply well.
Water Quality Parameters:

Time	Temp	pH	ORP	Cond	Turb	DO	
~~1045~~	~~10.49°~~	~~8.01~~	~~272~~	~~0.354~~	~~5.6~~	~~8.46~~	~~2A~~
~~1050~~	~~9.68°~~	~~7.72~~	~~283~~	~~0.00~~		~~9.14~~	~~2A~~
1051	10.45°	6.94	278	0.349	16.7	5.73	from Hose
1056	10.70	6.86	282	0.345	3.9	4.27	from spigot

1160 Collect DW02GW of school's primary well from spigot before treatment of water. Flow rate is at about 0.4 L/s.
10 of 15 samples have been analyzed by field lab. All results are Non-detect. They ran samples from 12' bgs at SB06 and both samples from SB07, SB01, SB02, SB03. Geoprobe crew goes to work on background boring BK01 on south end of Lenox property. Collect MS/MSD samples from this boring. Boring was drilled to 24' bgs. Clay is present from 3' bgs to depth of boring. Confer with Monica. Seems unlikely any potential source at the grain silos could penetrate this depth of clay. Agree to go drill more borings around grain silos to sample above clay and 1' into clay to continue to look for a source. Will also drill one boring to 24' to confirm

Linda E. Ad

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soil profile.

1230 Break for lunch

1315 Return to Conex to drill on north side of Conex.

move to south side of property. Drill to 30' to view lithology. Collect 5 samples from SB09 to look for carbon tet. All sample results from yesterday were ND.

1645 Adar goes to work on sample doc. AS & JF drill another boring (SB10). Chemists are analyzing samples from SB08 and SB09.

1915 Leaving site. Chemists are still working on today's samples.

1930 Arrive Hotel. Chemists arrive at 2130.

AS, LA, JF 12 Hrs

CW; AB 14.5 Hrs

Linda Ad

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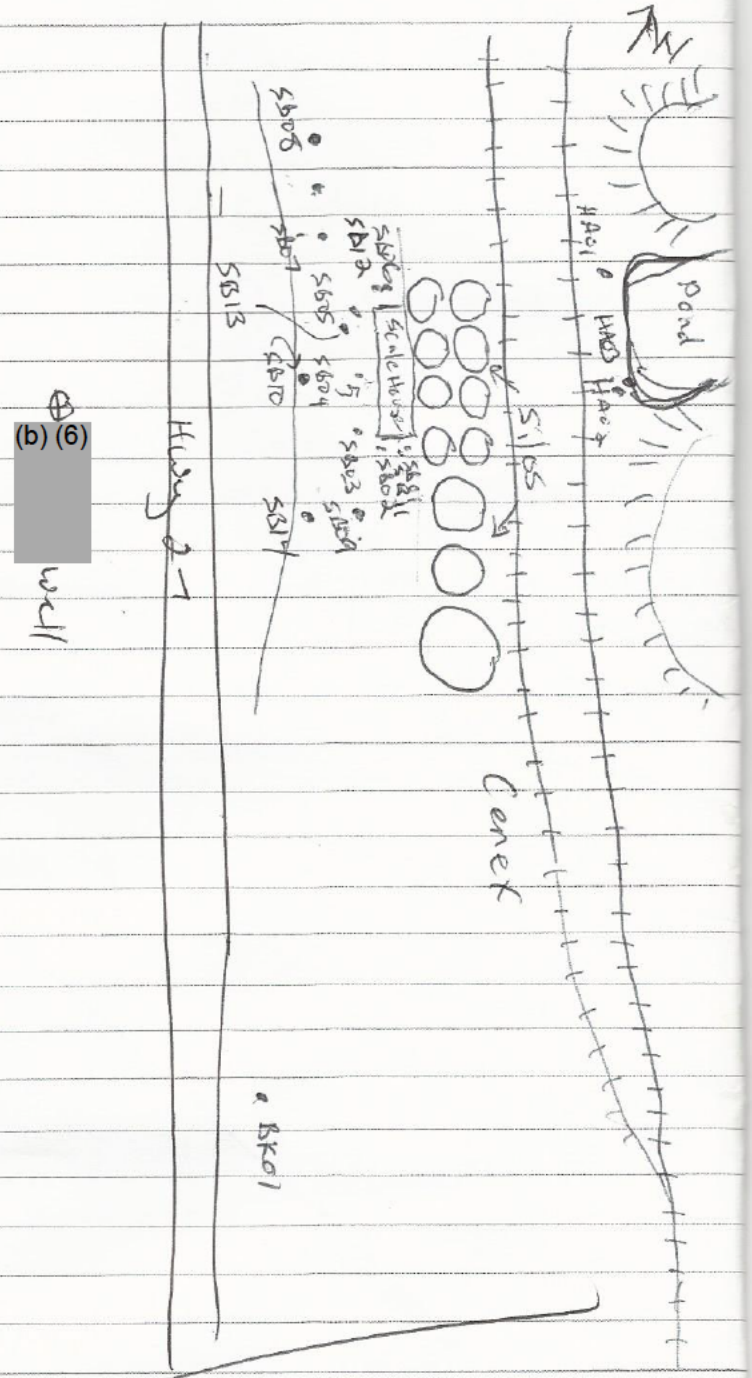

Finished

4/23/14 Freeman GW Cont 13-07-0005

0700 Leave hotel to get ice and head to site.
0810 H&S meeting, Cloudy & Raining, ~50°F
Tasks For Today
- Hand Augering at mutual mat'l lot
- Geoprobing at Cenex

Safety Issues:
- Stay clear of RR tracks when hand augering by at least 25'.
- Level D
- Ear protection around Geoprobe
- Slip/Trip/Fall
- Stay warm

0815 Chemists are running samples, Two samples yesterday from SB10 had 5 ug/kg Carbon tet. These were collected at ~18' and 20' bgs. AJ and JF goe to decon Geoprobe rods. LA to get equip. together for sampling at mutual materials. Stainless steel hand auger will be used. Spoke to Monica about reducing the number of borings on mutual materials prop from 5 to 2 since 3 locations are at the base of hills with no likely potential source on them. Two locations are between pond and RR tracks. Since the pond could have been used to dump material, these two locations will be sampled. This will also allow more time for Geoprobing at Cenex to gain more info about the carbon tet detections from yesterday. Deconned hand augers, wrap in foil
0905 Met with George Beamer with mutual materials Inch.
0915 Arrive at mutual materials prop.

Linda E Adams

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Drilling HA01 on north end of pond area.
0-0.5' duff
0.5'-3' Sandy gravelly clay with sand and mica, Tan
3' - 10' Grey-Blue clay with a trace of fine sand, moist
10'-10.5' Mustard colored silty, soft clay
10.5'-13' Grey-Blue clay with a trace of fine sand, moist
13' - 13.5' Mustard colored silty, soft clay, with some weathered basalt

1050 Collect HA01SB13.5 from 13' to 13.5' bgs.
Decon Hand augers with alconox and DI water
1120 Moved over to location HA02.
0-0.5' Duff
0.5-1.5' Tan sandy, gravelly clay with mica.
1.5'-2.5 Light grey silty sand, moist
1135 Collect HA02SB2.5 from 2' to 2.5' bgs.
2.5'-4' Tan sandy, gravelly clay, ~~with~~ ZA
Refusal at 4' bgs. A rock is present
offset 1' to south, but hit rock again at 4' bgs.
offset 15' to east, closer to pond. Decon Hand Augers ~~HA02BSB2.5~~
HA03SB
0-4" Duff
4"-2' Tan sandy, gravelly clay.
2'-2.5' Light grey silty, ~~sandy~~ ZA clay with a trace of clay and mica
2.5'-8' Blue-grey clay with a trace of fine sand.
8'-9' mustard ~~silty sand, org~~ ZA sandy silt with clay. High mica content, HH weathered Basalt.

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1250 Collect HA03SB09 from 8.5' to 9' bgs
1315 Leave mutual materials property.
1330 Break for Lunch
1400 Chemists working are samples from this morning.
Head back to do more Geoprobing at Conex.
Will start at closest location to grain elevator
and go down to 30' if possible.
1530 We review the area behind the silos and notice
drain pipes coming out of the concrete silo
pads. Monica phones UPPR about sampling
on this area near the rail spur. She speaks
with Jacob Allen with Transport Western Region
of UPPR. He states that spur is closed and not
in use. We are ok to sample in that area.
1650 LA leaves Conex to start sample doc.
AJ & JF start decon
1730 AJ & JF come up from Conex. Put decon water
in 1 55-gallon drum. Geoprobe decon water
1830 Collect ID01WT from decon water.
2000 Finish sample doc and arrive at Hotel
Time LA, JF, AJ 12.5 Hrs
CW, DB 11.5 Hrs

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0700 Leave Hotel. Get ice.
0730 Arrive site. Prepare equipment for today
0820 H&S meeting: Overcast, Raining, 45°F
- Today's Tasks
  - Collect Geoprobe and Hand Auger rinsates
  - Collect BKG well sample
  - Drill 3 borings to 24' at Canary
- Safety issues
  - Stay warm
  - Care around traffic & Geoprobe
  - Level D
  - Bear protection around Geoprobe
  - Trip/Slip/Fall.

0815 Spoke with Monica about today's plans, If we don't get 3 borings today, will have the Field lab run what we have, then will drill the last boring tomorrow and ship all samples to the Fixed lab so Field lab will demob tomorrow.
0820 AS & JF collect rinsate samples.
0900 LA and MT arrive at (b) (6) well with Todd (b) (6) to sample it as a background location
0902 Begin purging well.
(b) (6)

Rockford, WA 99030

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Water Quality Parameters:

Time	Temp	pH	ORP	Cond	Turb	D.O
~~0915~~	~~10.48~~	~~7.93~~	~~169~~	~~0.139~~	~~84.0~~	~~10.59~~ ~~2A~~
0918	10.91	7.47	146	0.269	3.7	3.58
0923	10.99	7.38	151	0.268	2.5	10.04
0928	10.95	7.42	162	0.268	3.5	10.30
~~0933~~	~~10.93~~	~~7.04~~	~~186~~	~~0.157~~	~~73.0~~	~~10.41~~ ~~2A~~
0933	10.95	7.32	163	0.267	0.1	10.31

0940 Collect [BK01GW] ms/msD sample. Flow rate at 0.5 L/s.

Rinsate Sample Times are:
0830 for [RI03WT] Geoprobe cutting shoe
0828 for [RI02WT] Hand Auger
0835 for [RI04WT] Geoprobe cutting shoe

1220 Adv ~~finish~~ finishes sample doc. Two coolers are being shipped today.
Fed Ex Airbills: 8623 0234 8806
8623 0234 8817
1255 Coolers dropped off at Fed Exp.
1330 Pick up 6 bags bentonite
1415 Arrive back at Cenex. Geoprobing is on-going
1730 LA heads up to work on sample doc. Done drilling. JF & AJ to decon and clean up. DB & CW to analyze samples.
2015 Arrive Hotel. LA to email RSCC, upload to Scribe & Sync.
2130 LA done for day

4/25/14 Freeman GW Cont 13-07-0005

0800 Leave hotel to get ice and head to site
0850 Collect [ID02WT] IDW sample of 2nd drum JF
0855 H&S meeting.
Today's tasks:
- Finish GPSing
- Download data from GPS & Horiba
- More pics of Cenex
- Finish sample doc and ship samples
- meeting with EPA & School District.
Safety Issues:
- No drilling or lab work today
- General Trip/Slip/Fall and Traffic awareness.
0905 - Collect [TB04WT] trip Blank by CW
JF & DB go to GPS points, photo Cenex, and download Horiba, Tablet, & GPS data
CW, AJ, & LA work on sample doc.
1200 Crew leaves site for warehouse.
Ader and Monica meet with Kirk Kally to discuss the rest of the SI process.
* Kirk will sample primary SD well before and after treatment, MT would like me to include these results in SI
* MT ask Kirk for most recent student population info for SI
SD (school district) tried to drill at new well west of the water holding tanks, but there was no water in the well, so the SD placed a water treatment system on their water supply instead.
The SD ~~wat~~ wanted another water source

Linda E Ader

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so there would be an alternate water supply to meet future demands, and to have an emergency backup water supply if the primary system goes ~~down~~ 24 down, out-of-service, the SD would really benefit from being able to use the (b) (6) [redacted] well (AW01).

Kirk supplies carbon Tet. result since December 2012

Jan 24, 2013 7.6 ug/L

Apr 10, 2013 9.3 ug/L

Jul 7, 2013 3.3 ug/L - Irrigation season

Sept 18, 2013 3.8 ug/L - Irrigation season

Kirk will send lab data sheets for these results,

1230 LA and MT leaks site,

1630 Arrive Hotel,

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1453 22 N view of CHS from southend.
1455 23 N Concrete around bins.
1455 24 E " " "
1459 25 N Dust cyclone and hopper

11/20/13 Freeman Co Court Photo Doc 13-[redacted]-[redacted]

Time	Frame	Dir	Description
1218	1	E	Opening of (b) (6) well
1218	2	D	" " " "
1223	3	E	(b) (6) well with Conex in view
1223	4	E	(b) (6) well monument cap with conex in view
1228	5	E	Conex From School Parking lot
1237	6	SE	Primary school district well head
1246	7	S	(b) (6) well, Hand pump does not operate. No pump w/ power
1246	8	SE	Monument cap on (b) (6) well
1250	9	S	(b) (6) house from near (b) (6) well.
1300	10	SW	New school district air stripping system.
1300	11	SW	Pre Treatment Sampling portal
1300	12	SW	Chlorination system and post treatment/ chlorination sampling portal on white water pipe.
1305	13	N	Three 100,000 gallon water storage tanks at school.
1305	14	N	Water storage tanks and well house at school (High School)
1427	15	N	CHS receiving facility
1429	16	E	Bucket elevator (leg) used to move grain to distribution system on top of bins
1440	17	S	Grain silos along railline spur
1441	18	NE	Old loading platform for loading clay onto rail cars, this feature is not part of grain silo operations.
1447	19	W	Auger motor. One of 2 at platz
1449	20	NE	Old lines to power a hydraulic motor to power augers at Tank 14 (southeast)
1451	21	E	Old portals used to push an auger in to line on southwest bin