DIVISION OF INDUSTRY SERVICES
PO BOX 7162
MADISON WI 53707-7162
Contact Through Relay
http://dsps.wi.gov/programs/industry-services
www.wisconsin.gov

Scott Walker, Governor
Dave Ross, Secretary

September 28, 2016

CUST ID No. 221538

ATTN: Plumbing Inspector

DENNIS L SUDA
SUDA PLUMBING
N7411 MERIDIAN AVE
SPENCER WI 54479-9102

BUILDING INSPECTION
TOWN OF PLOVER
5081 HOOVER RD SOUTH
PLOVER WI 54467

CONDITIONAL APPROVAL
PLAN APPROVAL EXPIRES: 09/28/2018

Identification Numbers
Transaction ID No. 2775639
Site ID No. 776086
Please refer to both identification numbers, above, in all correspondence with the agency.

SITE:
Biery Cheese
4930 Hayes Avenue & Hwy 54
Town of Plover, 54467
Portage County

FOR:
Facility: 719914 BIERY CHEESE
4930 HAYES AVENUE & HWY 54
PLOVER 54467
Plan Type: New; 1 Interior Fixture(s)

Object Type: Commercial Water Treatment Device Regulated Object ID No.: 1623744

The submittal described above has been reviewed for conformance with applicable Wisconsin Administrative Codes and Wisconsin Statutes. The submittal has been CONDITIONALLY APPROVED. The owner, as defined in chapter 101.01(10), Wisconsin Statutes, is responsible for compliance with all code requirements.

No person may engage in or work at plumbing in the state unless licensed to do so by the Department per s.145.06, stats.

The following conditions shall be met during construction or installation and prior to occupancy or use:

This approval is contingent upon compliance with the following stipulation(s):

- These water treatment devices have undergone sufficient testing to document the product's ability to reduce only those contaminants and/or substances as specified in this approval letter when the product is installed and maintained in strict accordance with the manufacturer's published instructions.

- Where the Department of Natural Resources (DNR) has jurisdiction, a written approval may be required prior to installation of this product in a water supply system to reduce the concentration of a contaminant that exceeds the primary drinking water standards contained in ch. NR 809, Wis. Admin. Code, the enforcement standards contained in ch. NR 140, Wis. Admin. Code, or for a water supply system that is subject to a written advisory opinion by the DNR. For more information contact the DNR Section of Private Water Systems, P.O. Box 7921, Madison, WI 53707, telephone (608) 267-9787.

- If the approved devices are modified or additional assertions of function or performance are made, then this approval shall be considered null and void, unless the change is submitted to the department for review and the approval is reaffirmed.

- This installation must undergo a final inspection prior to the device being put into service. The Plumbing Consultant having jurisdiction in this area is Bruce Meiners. Mr. Meiners can be contacted via the following:

  Phone: 608-399-4156
  Fax: 608-283-7452
  E-mail: bruce.meiners@wi.gov

  When the final inspection has been completed, this department will notify the Wisconsin Department of Natural Resources (WDNR). The WDNR will then monitor the performance of the device(s) to its satisfaction. A suggested frequency and overall duration of monitoring is provided elsewhere in this letter.

  If these devices are installed and put in service prior to obtaining a final inspection, then any pertinent approval for the site specific device is immediately rendered null and void and the device may be ordered removed.

- When the final inspection has been passed, the Plumbing Consultant will notify the Wisconsin Department of Natural Resources (WDNR) Field Staff having authority over the well. The WDNR will then monitor the quality of the treated water to its satisfaction. Monitoring advice, which the WDNR is free to accept or reject, is provided elsewhere in this letter. The WDNR Field Staff having authority over this well is Anna Mares. Ms. Mares can be contacted via the following:

  Phone: 715-839-3798
  E-mail: anna.mares@wisconsin.gov

- The suggested monitoring interval for this installation is quarterly. As a minimum, the following tests should be performed:

  1. nitrate 2. copper

  The samples should be collected at a time of day when the device is under stress and at a time most remote from the last regeneration cycle as possible. Because this device is reportedly being installed on a partial copper water supply system, concerns relating to decreased alkalinity and subsequent corrosion are applicable. For this reason a chemical injection port has been added to address this concern should it arise. If copper is detected, then lead samples should also be collected. Lead and copper corrosion samples should be collected in accordance with the USEPA's Lead/Copper Rule (i.e. overnight dwell samples most remote from the point of entry as possible). If copper and/or lead are detected, then chemical feed to protect the pipe is mandatory.

- The anion exchange, nitrate reduction devices being installed is approved under DSPS product file number 20150048. The approval letter can be viewed at:

  http://dsps.wi.gov/sb/docs/sb-ppalopp/wtd/20150048.pdf

  All stipulations displayed in the approval letter for product file number 20150048 must be adhered to. Two devices are to be installed, resulting in a maximum rated service flow of 40 gpm, with the provision to add a third device in the future if warranted.

TABLE 1 OF 1
NITRATE/NITRITE REDUCTION CAPABILITIES

Model Number	Salt 1 (lbs.)	Capacity 1♦ (grains)	Salt 2 (lbs.)	Capacity 2♦ (grains)	Salt 3 (lbs.)	Capacity 3♦ (grains)	Max. Flow* (gpm)
H125-NRS-50	25.0	42,000	50.0	51,000	75	56,000	20

*** = A flow restrictor must be installed to prevent exceeding the flow rates displayed**
♦ = capacities listed at 25% SO_4^{2-}
1 grain = 64.79891 mg
1 grain/gal. = 17.1 mg/l

- Any water treatment chemicals injected into the potable water supply shall conform to ANSI/NSF Standard 60. The following chemical is being used for chlorination:

  http://database.ul.com/cgi-bin/XYV/template/LISEXT/1FRAME/showpage.html?name=FDPH.MH17854&ccnshorttitle=Drinking+Water+Treatment+Chemicals&objid=1074262012&cfgid=1073741824&version=versionless&parent_id=1073986532&sequence=1

  The maximum use concentration is 84 mg/l.

- Any exterior wall hydrant that is not served by the nitrate treatment devices must have one, or more, of the following:

  1. The handles of the hydrant shall be removed;
  2. The hydrant shall be capped and sealed using solder; or
  3. Signage shall be posted immediately above the hydrant indicating the water is unfit for human consumption.

- All water distribution piping shall be marked as required by Table SPS 382.40-1a.

- The ongoing maintenance of this system will be performed by WDNR certified operators at Biery Cheese – Kickapoo Valley Plant.

- No bypass piping shall be installed serving these devices. If a bypass is strongly desired, then it must be of the locking type.

- Flow controls shall be installed to prevent the device from exceeding its maximum rated service flow rate (i.e. 20 gpm). Note, the calculated building demand for this site is 153 gpm, the maximum service flow rate of the nitrate treatment system installed is 40 gpm, with the option to expand the system to 60 gpm. The discrepancy between the building demand flow rate and treatment system flow rate is addressed via a 12,500 gal. WDNR approved water storage tank. In this instance, the treatment devices shall be installed prior to the storage tank and sized relative to the well pump. The well pump has a maximum flow rate of 35 gpm.

A full size copy of the approved plans, specifications and this letter shall be on-site during construction and open to inspection by authorized representatives of the Department, which may include local inspectors. If plan index sheets were submitted in lieu of additional full plan sets, a copy of this approval letter and index sheet shall be attached to plans that correspond with the copy on file with the Department. If these plans were submitted in an electronic form, the designer is responsible to download, print, and bind the full size set of plans along with our approval letter. A department electronic stamp and signature shall be on the plans which are used at the job site for construction. All permits required by the state or the local municipality shall be obtained prior to commencement of construction/installation/operation.

In granting this approval the Division of Industry Services reserves the right to require changes or additions should conditions arise making them necessary for code compliance. As per state stats 101.12(2), nothing in this review shall relieve the designer of the responsibility for designing a safe building, structure, or component.

Inquiries concerning this correspondence may be made to me at the telephone number listed below, or at the address on this letterhead.

Sincerely,

Glen W Schlueter
Plumbing Product Reviewer , Division of Industry Services
(608)267-1401 , Monday-Friday 7:00AM-3:30PM
glen.schlueter@wisconsin.gov

Fee Required $ 160.00 This Amount Will Be Invoiced. When You Receive That Invoice, Please Include a Copy With Your Payment Submittal. WiSMART code: 7657

cc: Bruce Meiners, Plumbing Consultant, (608) 399-4156, Mon - Fri 8:00 am - 4:30 pm
Dave Green, Biery Cheese

Note: Effective January 1, 2012, all codes under the jurisdiction of the Division of Industry Services (formerly Safety & Buildings) will be modified. Code references with prefixes starting with "Comm" have been replaced with "SPS" to recognize the relocation of the Division of Industry Services from the former Department of Commerce to the Department of Safety & Professional Services. Additionally, all IS (formerly S&B) codes have been renumbered and addressed in a "300" series. For future reference, the Wisconsin Commercial Building Code will be addressed by SPS Chapters 360-366.

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SUDA
MP#221538
8/1/16

Biery Cheese Site-Specific Commercial Water Treatment Device Review

Background:

In August 2015 Bier Kase/Biery Cheese finished the remodel of a portion of an old potato factory into a cut and wrap cheese processing facility. This entailed the install of a completely new water supply and distribution system with the exception of two existing office areas.

Plumbing plans for the interior water distribution system were designed and submitted by Excel Engineering (transaction ID 2484866) and were approved on January 13, 2015. Three (3) copies of this approval letter along with copies of the sheets pertaining to the water distribution system are enclosed. Water calculations are shown on sheet P2.1.

The exterior well pump, water supply line, and atmospheric potable water storage tank were submitted to the Wisconsin Department of Natural resources by Suda Plumbing. The high capacity well use was approved on August 25, 2015 and the storage tank was approved for use on September 3, 2015. Three (3) copies of the details of this submittal and schematic drawing are also attached.

Water sample test results at the time of construction showed acceptable nitrate levels, however, the concern was that as water usage increased so too would the nitrate levels. Also, other facilities in the area had shown elevated nitrate levels. For this reason provision were made in the plumbing design to allow for the install of future nitrate removal units. These are shown on both the water distribution plan submitted to the State of Wisconsin DSPS and the WDNR.

As predicted, the nitrate levels have increased, and the facility now needs to bring the nitrate levels down to an acceptable level.

Proposal:

We are proposing that Biery install a Hellenbrand H125-NRS-50 Twin Systemmate Nitrate Reduction System to meet current demand. Each unit is capable of providing 20 gpm to the storage tank, for a total capacity of 40 gpm when both units are in operation. During regeneration flow will be limited to 20 gpm. Regeneration times will be set to daytime hours when the storage tank is at or near full capacity. Provisions have been made to install a third unit to make this a triplex system if water usage is increased in the future. This is a pre-approved system under Product File No: 20150048. Three (3) copies of this approval are attached.

The facility is currently using about 10,000 per day in which the majority of this water is used during nighttime sanitation. The storage tank holds 12,500 gallons, leaving 2,500 gallons in reserve without figuring any make-up water from the well pump in a day's time. The well pump slowly recovers from the nighttime surge at a rate of 35 gpm during the daytime hours when water use in minimal. This surge can be replenished in five hours or less.

At the time of installation, a back-pressure regulating valve was installed on the well line to the storage tank to ensure adequate pressure for the water softeners and future nitrate removal equipment to function properly. This valve is set at 45 psi, and only allows flow to the storage tank if the pressure on

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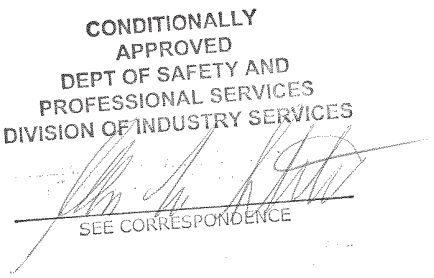
the well line is above 45 psi. This allows the treatment equipment to regenerate properly and also restricts the flow rate so pressure losses through the equipment are not excessive. The well pump is on a VFD and is controlled by a pressure sensor on the well line which is set at 65 psi. The well pump runs to maintain 65 psi at all times, with max flow rate of 35 gpm.

The current 10,000/day usage equates to an average of 7 gpm. The storage tank was installed to smooth out the peaks and valleys which can be as low as 0 and as high as 80 gpm. This allows the well system to run independently of the water distribution system at a more steady flow rate. The water softeners and proposed nitrate removal equipment were designed to be on the well side of the storage tank so that they would not need to be oversized to meet the peak flow of the facility, but rather could be designed for a more even flow – improving the performance and longevity of the equipment.

Based on the current piping schematic it is not feasible to separate toilet water from human and food contact water, and as a result, nitrates will be removed from the entire system.



State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
101 S. Webster Street
Box 7921
Madison WI 53707-7921

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711

September 3, 2015

ATTN DAVID GREEN
BIER KASE LLC
6544 PARIS AVE NE
LOUISVILLE OH 44641

Subject: APPROVAL FOR THE USE OF A 12,500 GALLON ATMOSPHERIC POTABLE STORAGE TANK (tank) - File 20-3-0014

Dear Mr. Green:

The Department of Natural Resources (department) received a drawing and a tank inspection report on June 24, 2015, water supply and tank schematic on August 3, 2015 and variance request on August 24, 2015 for the use of the subject tank. The tank is constructed of stainless steel, includes a 3 inch overflow pipe and a 2 inch vent pipe.

Based on the information provided, and in accordance with Sections NR 812.09 (4) (v) and NR 812.33 (2) of the Wisconsin Administrative Code your tank is approved with conditions. See the Conditions section below. A variance has been granted and follows the Conditions section.

Your department contact for implementation of the Conditions is Adam Scheunemann and his phone number is 715-421-7807.

Conditions

1. The proposed disinfection shall be Method 2 of the AWWA Standard C652 (August 1, 2002). This conforms to the requirements of Section NR 810.09 (4) (a) of Wisconsin Administrative Code for post construction disinfection. This disinfection process is required as your facility will supply water as a Non-Transient Non-Community Public Water Supply.

2. Post disinfection sampling shall meet the requirements of Section NR 810.9 (4) (b) of the Wisconsin Administrative Code for bacteria. For additional information on the sample collection process contact the department's Adam Scheunemann at 715-421-7808.

3. This facility will operate as a Non-Transient Non-Community Public Water Supply. You shall comply with the operation and maintenance requirements, for this type of water supply, as found in Chapter NR 810 of the Wisconsin Administrative Code.

Grant of Variance

Bier Case, LLC requested a variance from the requirements of section NR 812.33 (2) (b) 1. b. Wis. Adm. Code on August 24, 2015. Additional information was received on September 1, 2015. The variance request is for the relocation of the overflow pipe discharge location to an interior building location. The department finds that a proposed overflow pipe discharge in accordance with NR 812.33 (2) (b) 1. b. will not allow for proper drainage away from the from the facility and the facility's access doors. Installing the discharge location perpendicular to

the building would interfere with an active driveway. Therefore the department grants a variance for an internal discharge location with the following conditions:

1. That the discharge end of the overflow pipe terminate with a screen.

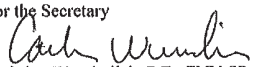
2. That the nearby perforated floor lid for the building drain, and the visible part of the drain itself remain clean and unplugged.

Notice of Appeal Rights

If you believe that you have a right to challenge this decision, you should know that the Wisconsin statutes and administrative rules establish time periods within which requests to review Department decisions must be filed. For judicial review of a decision pursuant to sections 227.52 and 227.53, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to file your petition with the appropriate circuit court and serve the petition on the Department. Such a petition for judicial review must name the Department of Natural Resources as the respondent.

To request a contested case hearing pursuant to section 227.42, Wis. Stats., you have 30 days after the decision is mailed, or otherwise served by the Department, to serve a petition for hearing on the Secretary of the Department of Natural Resources. All requests for contested case hearings must be made in accordance with section NR 2.05(5), Wis. Adm. Code, and served on the Secretary in accordance with section NR 2.03, Wis. Adm. Code. The filing of a request for a contested case hearing does not extend the 30 day period for filing a petition for judicial review.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary



Cathrine Wunderlich, P.E., ENV SP
Chief, WDNR Public Water Engineering Section
Phone: (608) 266-0857
Mobile: (608) 886-0864

Cc: Adam Scheunemann- DNR West District (via email)
Ben Suda- Suda Plumbing (via email)

Biery Cheese Proposed New Potable Water Supply System

Existing Conditions

- Currently Well #3 located just north of West Office area is serving a restroom and a break sink in that area

- Existing water piping in the East Office area has been repaired and tested

- New water piping has been installed in the plant restroom/break area

- New water piping is currently being installed in the new production/mechanical areas

Proposed changes

- Use Well #3 as a potable water supply for newly remodeled areas and future expansion
- Install new 2" pitless adapter, 2" drop pipe, and new 2" HDPE well service to mechanical area
- Cap off existing pitless adapter and remove existing pressure tank/pressure switch system in West Office area
- Install new 5hp well pump with VFD control (50 gpm future, set drive at 35 gpm max for present use), pressure sensor, sample tap, pressure relief valve, etc.
- Install Duplex Progressive Flow water softeners with valving for future unit
- Install valving and equipment pad for three (3) future Nitrate Removal units (current Nitrate samples are safe)
- Install flow switch and chlorine injection pump on supply line downstream of treatment equipment
- Install 12,500 gallon non-pressurized water silo as buffer zone for spikes in water usage with all appurtenances as per code
- Install N/C silo fill valve/pressure sustaining valve which will fill the silo based on level and will hold back (sustain) 45 psi upstream of the valve to ensure there is sufficient pressure for water softener function/regeneration
- Install level sensor (pressure sensor) to show level, alarms, and control silo fill valve
- Install water silo bypass and drain
- Install pressure boosting skid to pressurize water for plant/restrooms
- Install pressure relief valve on pressure side of booster to re-circulate back to top of silo for chlorine mixing
- Use water softener meters to monitor water usage. Data will be transferred to a PLC and totalized for easy viewing and record keeping.

Typical Sequence of Operations

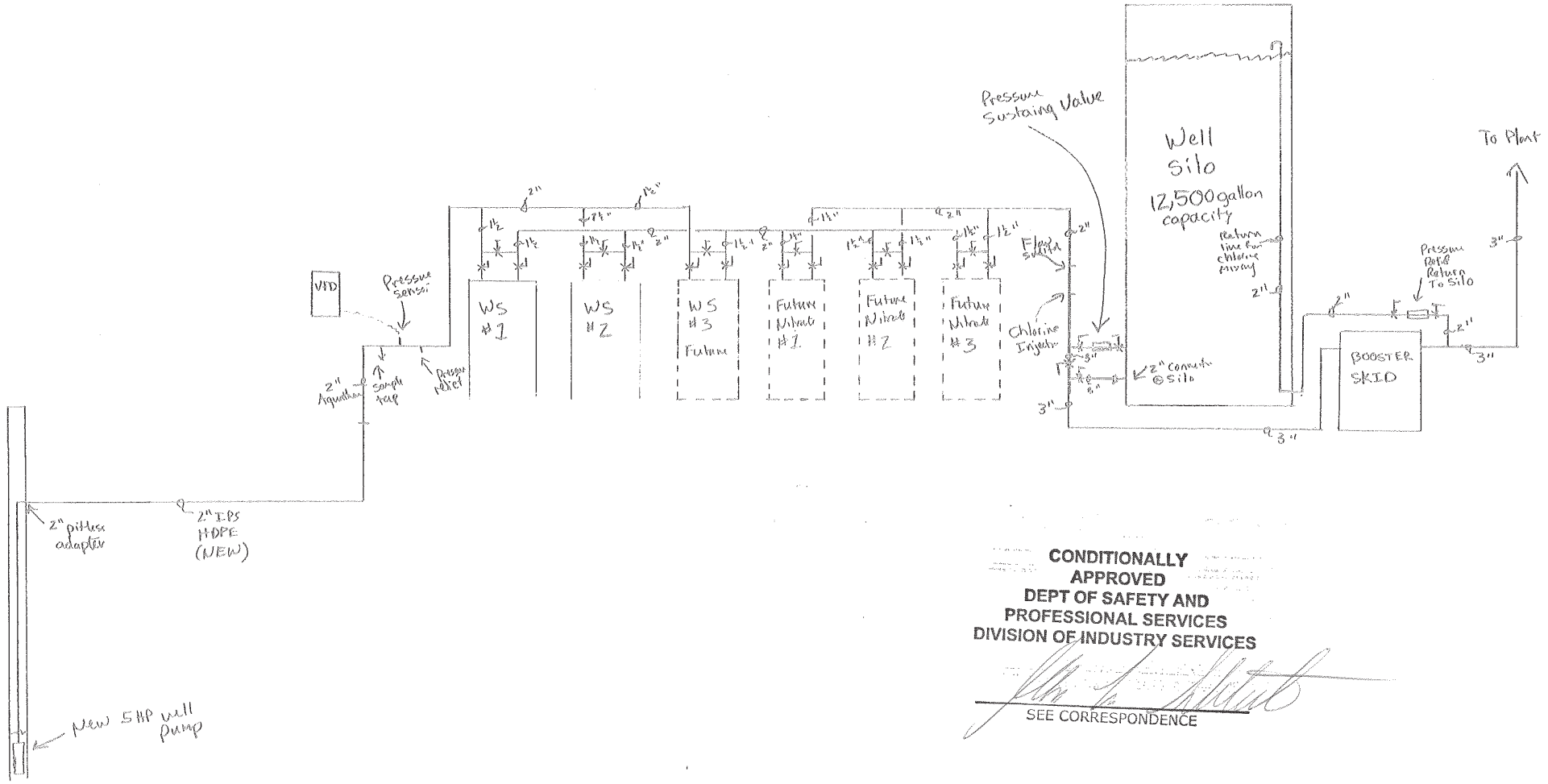
In resting state, water supply is satisfied at 65 psi based on the readout of the pressure sensor. Well pump is off and well silo is satisfied at a working level. Silo fill valve is closed and chlorine injection pump is off. Booster pump is set at 80 psi with pressure relief (return) valve set at 75 psi. Water is circulating from pressurized booster side back to top of well silo for mixing.

Action – water level drops below working level

- N/C solenoid on silo fill valve is energized based on signal from PLC which determines the silo needs to be filled based on the level shown by the level sensor
- Silo fill valve opens and allows water to fill the well silo
- Flow switch for chlorine injection senses flow and turns on chlorine pump
- Well pressure sensor senses a drop in pressure and well VFD control turns on well pump and tries to maintain 65 psi. Line pressure will not drop under 45 psi due to the pressure sustaining function of the silo fill valve.
- Silo continues to fill until PLC determines that an acceptable working level has been met based on the output of the level sensor
- The solenoid valve on the silo fill valve is de-energized and the silo fill valve closes
- Flow switch no long senses flow and chlorine pump is turned off
- Well continues to run until pressure sensor senses 65 psi and well pump is turned off

Attachments:

- Copy of Excel Site Plan
- Aerial view of site
- Copy of Excel Site Plan showing proposed well service and well location
- Copy of Excel Floor Plan showing silo and equipment layout
- Piping schematic of proposed well system with all appurtenances
- Well pump spec sheet and curve
- Water meter spec sheet
- Copy of potable water tank inspection



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DEPT OF SAFETY AND PROFESSIONAL SERVICES
DIVISION OF INDUSTRY SERVICES

SEE CORRESPONDENCE