HOWARD COUNTY, MARYLAND

OFFICE OF PURCHASING

6751 Columbia Gateway Drive, Suite 501, Columbia, MD 21046

ADDENDUM NO. 1

ISSUED August 22, 2017

REQUEST FOR PROPOSALS NO. 03-2018

GROUNDWATER REMEDIATION SYSTEM HARDWARE/SOFTWARE MODERNIZATION

OPENING: September 6, 2017 AT 2:00 P.M

https://www.howardcountymd.gov/departments/county-administration/purchasing

This addendum is hereby made a part of RFP No. 03-2018. Note the following information and submit the proposal accordingly.

Please note that a second prebid will be held on August 25, 2017 at 10:00am at Alpha Ridge Landfill, 2350 Marriottsville Road, Marriottsville, MD 21104. Please refer to the response to Question 28 for details.

There are five separate attachments included in this Addendum.

Questions/Answers

Questions 1:	Section 01000-1.5.2 – Spec section states that …… Contractor shall exercise care during demolition work to confine demolition operations to only those indicated in the specifications. Will there be drawings provided later to provide details on demolition work?
Answer:	The County will not be providing drawings of demolition work. Demolition details are provided in Section 01000 – 1.5 of the RFP. The CONTRACTOR will be responsible to remove the existing panels and install the new panels per the RFP. All electrical connections to the existing panels will be identified as to existing destination, new labels applied to correspond with new control drawings, disconnected, and laid back out of the way. The new panels fabricated by the CONTRACTOR will be installed in the existing enclosures and the electrical connections will be terminated on the new panels as designed. Any damage to conductors during this demolition process will be the responsibility of the CONTRACTOR to replace at no cost to County.
Question 2:	Section 01000-1.5.6 – Spec section states that …… Pictures of existing back panels are available on request. We would like to get pictures of existing back panels.
Answer:	Photos of the existing panels with captions are provided in Attachment I and Attachment II.
Question 3:	Section 01000-1.5.6 – Spec section states that …… Following is the list of parts/quantities that must be identified by the Contractor. Is it expected from contractor to provide these spares?

Answer: This is Section 01000 - 1.11.2. Yes, the Contractor should provide pricing in the price sheet for the parts and quantities shown with the expectation that these parts will be provided.

Question 4: Section 01000-2.4.2 – Spec section states that …… Remote system description: There will be remote located software (location to be determined) such as Dream Reports (or approved equal) that will retrieve stored data from County-owned data server and generate regulatory reports. Does it mean County will provide their own system for logging data? If yes, can we get more details of database being used such as historian, SQL etc.?

Answer: Please see response to Question 29 for updated details concerning data storage requirements.

Question 5: Section 01000-2.6.1.4.4 – Spec section states that …… One (1) panel mounted graphical Human Machine Interface (HMI) communicating directly to PLC. This HMI will utilize a software package such as Wonderware's Intouch ME (or approved equal) that will provide ability to meet requirements as detailed in Section 2.6.C. We could not find section 2.6.C in the specs. Please provide.

Answer: Please replace "Section 2.6.C" with Section 2.6.3.

Question 6: Section 01000-2.6.2 – Spec section states that …… Remote Well Control Panels: Provide fourteen (14) remote well control panels (populated back panels only) for interfacing with the main control panel. For each well, the following will be installed in an existing NEMA 4 outdoor-rated enclosure, wired and tested for a 120/240-volt, 1- phase, 3-wire, AC power supply. (See 2.6.B Exhibits for photos of existing control panels – for reference only). We have not received 2.6.B exhibit. Please provide.

Answer: This is Section 13400. Photos of the existing control panel layouts are provided in Attachment I and Attachment II**.**

Question 7: Section 01000-2.6.3.3.1. – Spec section states that …… Examples of each of these reports showing the format will be provided for CONTRACTOR review. Can we sample of reports that required under this project?

Answer: This is Section 13400. The reports are Microsoft Excel spreadsheet reports that provide a daily summary of well-specific information such as pumping cycles, runtime, total discharge, water elevation, total system daily pumpage, total system monthly pumpage.

Question 8: Section 01000-2.7.1.4.1. – Please provide part number of existing enclosure so we can provide correct back panel.

Answer: This is Section 13400. Carrs Mill PLC enclosure Hoffman part number C-SD483612; panel part number CP4836. Carrs Mill Well panel enclosure is Hoffman part number C-SD24248; panel number CP2424.

Alpha Ridge PLC enclosure part number is not available – dimensions 30-inch wide by 36-inch tall; panel part number is not available – dimensions 27-inch width b 33-inch tall. Stud pattern on PLC enclosure panel is six - 3/8-inch studs, located in each of four corners, offset by 1-inch from edge in each direction; 2 additional studs located offset 1-inch from long edge, centered 16 ½-inch from panel top.

Alpha Ridge well panel enclosure for 20 original wells panel part number not available – dimensions 20-inch wide by 24-inch tall. Alpha Ridge well panel for 20 original wells is 17-1/4-inch wide by 21-1/4-inch tall. Stud pattern on the well panel is four – 3/8-inch studs, located in each of four corners, offset by 1-inch in each direction from the corner.

Alpha Ridge well panel enclosure for 2 new wells is Saginaw part number SCE-6EL4812LPPL. Alpha Ridge well panel for 2 new wells is Saginaw part number SCE-60P48.

Question 9: Section 01000-2.7.1.4.1. – Spec section states that …… Details of existing hole pattern available upon request. Please provide.

Answer: Please refer to response to question 8.

Question 10: Section 01000-2.7.1.4.4 – Spec section states that …… One (1) panel mounted graphical Human Machine Interface (HMI) communicating directly to PLC. This HMI will utilize a software package such as Wonderware's Intouch ME (or approved equal) that will provide ability to meet requirements as detailed in Section 2.7.C. We could not find section 2.7.C in the specs. Please provide.

Answer: This is Section 13400-2.7.1.4.4. Please replace "Section 2.7.C" with Section 2.7.3.

Question 11: Section 01000-2.4.2 – Spec section states that …… One (1) new, steel, powder coated door skin to attach over existing door to cover existing door penetrations. Size per enclosure described in previous bullet. What exactly is to be provided?

Answer: The text referenced is in Section 13400-2.6.1.4.2. The CONTACTOR shall provide a covering over the existing enclosure door in order to cover the opening that will be created by the removal/demolition of the existing OIT that currently penetrates the enclosure door. Perhaps the attached photos of the enclosure will provide clarity.

Question 12: Would the County consider waiving the requirement for a performance bond. If not, will the County accept a Letter of Credit from a bank licensed to do business in Maryland as financial assurance for the performance bond in lieu of a surety company?

Answer: The County will not wave performance bond requirement, and the County does not accept Letter of Credit from a bank

Question 13: What topology is the County planning on using for the Fiber Optic Network?

Answer: The topology at Alpha Ridge Landfill will be fiber-based daisy-chain, with logical ring for well vaults to the east of the Groundwater Building and a separate fiber daisy-chain with logical ring for the wells to the west of the Groundwater Building. Carrs Mill Landfill will be a daisy-chain type using CAT-6 cabling between all the well vaults.

Question 14: Who will be providing the termination to each site for the Fiber Optic Network?

At the Carrs Mill site the spec: 13400.2.4.3.1.1 page 45 states, "the contractor will install, terminate and test all CAT6 Ethernet wiring from communication enclosure, in close

proximity to well CRB-3, to each of each well from the previous well through existing communications conduits".

This spec section is different from what is stated in the for Alpha Ridge spec section: 13400.2.5.3.1.1 page 46 states, "the County will provide installation and testing for all new sites".

Please clarify who is to install the Fiber Optic Network and the terminations for both the Carrs Mills site and the Alpha Ridge Site?

Answer: At both sites, the County will provide high speed internet into each groundwater building where the PLC will be housed. The County will provide, install, terminate, and test fiber optic at Carrs Mill from the Groundwater Building to a junction box near well CRB-3 (shown on Figure in Attachment 4).

At Alpha Ridge the County will provide, install, terminate and test all fiber between the Groundwater Building and wells. A County-provided patch panel will be installed at each well vault. The County will provide CAT6 connection to the County-provided gateway appliance for CONTRACTOR to patch to ethernet switch which will connect to HMI PC and 2nd NIC module.

Question 15: Can we reuse the existing IP Addresses or is there a preferred IP Address the County will provide for this project? Spec: (13400.1.4.5 page 38)

Answer: There are no existing IP addresses to re-use. See RFP Section 13400 – 1.4.5 for IP address responsibilities.

Question16: What is the source of the High-Speed Internet? Per spec 13400.2.4.3.1.3 page 45 - HMI will be accessible via secured, High Speed Network.

Answer: The County will provide internet connection through the County network and County internet.

Question 17: Please provide an electronic or written copy of the current PLC ladder logic as mentioned in spec 13400.2.2 for the Main PLCs at Alpha Ridge and Carrs Mills prior to the bid date?

Answer: Please see Attachment III for an example of the existing ladder logic.

Question 18: Please provide a "Sequence of Operation" for each of the PLC control panels prior to the bid date?

Answer: Please refer to Page 65, Section 13400 – 2.8 of the RFP.

Question 19: What is the distance between each well and CRB-3 for conduit runs and CAT6 cable lengths? (13400.2.4.3.1.1 page 45). Please provide a diagram on the conduit runs and wires?

Answer: A figure for each site is provided in Attachment IV. Below are the approximate distances to assist the CONTRACTORS in bid preparation. These are straight line distances between well vaults and are not exact distances of conduit runs. Further, these distances do not account for any distances inside vaults, or other needs.

Connection	Distance (feet)
1	177
2	143
3	189
4	52
5	74
6	74
7	40
8	47
9	39
10	138
11	130
12	129
13	168
14	213

Question 20: Please provide a wiring diagram that shows the wiring to the Main PLC and the Well PLCS as well as the wiring to the ancillary equipment, i.e.: vault equipment, pumps, instrumentation etc…

Answer: All equipment/points that are to be connected to the new back panels are defined in the I/O lists in the RFP. Please refer to Section 2.6 for details concerning Carrs Mill and Section 2.7 for details concerning Alpha Ridge. Wiring diagrams can be provided to the CONTRACTOR after award.

Question 21: The specification page 43 section 1.8.2 states: "This duration includes the 21-calendar day shutdown period for demolition and installation of new equipment at each site".

Please clarify if there is 21 days for shut down for Alpha Ridge Site and 21 days for shut down at Carrs Mills Site or is there 21 days for shut down for both Carrs Mills and Alpha Ridge?

Is the Contractor able to work during the weekends during the 21-day shut down?

Answer The CONTRACTOR will have 21 days for system shutdown to complete demolition and installation of new equipment at each site. For both sites, the CONTRACTOR shall have a total of 42 calendar days.

Please refer to Section 01000 – 1.2 regarding project work schedule. The landfill is closed on Sundays; however, the CONTRACTOR may request permission to work Sundays to meet project schedule requirements. Note that the CONTRACTOR must request permission for Sunday work 96 hours in advance.

Question 22: Please confirm if the new panels are to be intrinsically rated?

Answer New panels are not required to be intrinsically rated.

Note that well panels at Carrs Mill Landfill are housed in the well vaults, which are considered confined spaces for the purposes of occupancy to complete work. The CONTRACTOR shall coordinate with the County to complete confined space permit requirements prior to entry.

Question 23: Please confirm if the pilot devices on the door of the Well Control panels are to be replaced?

Answer: All electrical control components described in the RFP, located inside or on the door of the control panels will be replaced as part of this work.

Question 24: Please confirm who is responsible to fix or replace existing equipment or instrumentation that is determined to be not functioning properly or is broken?

Answer: The CONTRACTOR will replace all equipment identified in the RFP. If ancillary equipment, not identified in the RFP, but related to the system, is found to not be functioning, the CONTRACTOR will not be responsible for the cost of repair or replacement.

Question 25: Are there any County standards for PLC and HMI programming? If yes, please provide.

Answer: Acceptable PLC programming protocols include the following: Ladder Diagram (LD), Sequential Function Charts (SFC), Function Block Diagram (FBD), Structured Text (ST), and Instruction List (IL). Proprietary PLC and/or HMI systems will not be considered. Note that the CONTRACTOR will be responsible to apply any required software and or firmware updates.

Question 26: Spec section 1.4.17.1.1.3 states Call-out system development, runtime and communications software. Which Call-out software is required for this project?

Answer: If the CONTRACTOR specifies an HMI system that includes a call-out system, such as Wonderware® products, and the call-out system offers all the features identified in the RFP, it will be considered adequate. If the HMI system proposed by the CONTRACTOR does not include this functionality, the CONTRACTOR can propose a stand-alone system such as WIN911®, as long as the system provides all the features identified in the RFP.

Question 27: Can we assume that all existing instruments and field devise wired to PLCs are fully functional?

Answer: Yes.

Question 28: Is it possible for our electrical contractor to make a site visit to review the field installation?

Answer: Yes, the Pre-bid Meeting Part 2 will be conducted on August 25, 2017 at 10:00am at the Alpha Ridge Landfill Training Trailer. After the meeting, no additional questions will be

responded to by the County. If there are questions at the prebid that the County cannot answer, then a second addendum will be issued."

Question 29: Is the contractor required to push the PLC data to SQL server for County's data logging?

Answer: To simplify the data storage process, the method of data storage has been revised from the RFP. The CONTRACTOR shall propose a "cloud-based" data storage system that meets the attached County requirements (Attachment V.). The Contractor will be required to select a cloud storage provider to push all data to instead of County owned servers/databases. The Contractor will be responsible to set up the cloud storage service, connect the HMI PC to the cloud storage service via the County network (which will provide Internet access to the cloud storage service). The Contractor will also be required to set up the report generating software (provided by Contractor) to the same cloud storage service for report generation as described in RFP. All data that is stored on cloud storage service will be the property of the County and will only be accessed by the County after system is commissioned. The County will be responsible for maintaining the cloud storage service including any service fees associated.

Question 30: Please confirm if copper or fiber media will be provided by County between remote I/O panels and their respective PLCs. We need to know this so we can provide media converters if County is planning to install fiber cable.

Answer: CML

- Refer to Section 2.4.3.1.1 of the RFP for details concerning CONTRACTOR responsibilities for the I/O data network between the first well in the run, CRB-3, and the well vaults.
- Section 2.6.1.4.6 calls for CONTRACTOR to provide two combination Ethernet/Fiber switches - this remains unchanged. Description Correction: These two switches will be used for the I/O network and not the County network. One switch will be located in the ground water building and the other will be located in CRB-3 to convert the fiber that will be installed, terminated, and tested by the County to copper for connection to the PLC I/O NIC module and the three closest well vaults to CRB-3, respectively. Contractor will provide necessary fiber optic patch cables to connect switches to the County-provided patch panels.
- Update to original specification Section 2.6.1.4.6: Provide optional pricing for upgraded switches that are level one managed. Base price can include non-managed switches. County will decide if upgrade is desired before procurement. Please include option price in pricing proposal on separate sheet.
- Update to original specification: One additional 8-port, (8-RJ45) will be added to Groundwater Building control panel to connect the County-provided network gateway appliance. Contractor will provide appropriate CAT6 patch cable to County network gateway appliance. This additional switch will connect to the HMI PC and the 2nd PLC NIC module.

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- The County will install, terminate, and test fiber optic cable to each of the 22 well vaults in I/O data network in a daisy-chain with logical ring topology. One pair of fibers will leave the Groundwater Building and service approximately half of the well vaults to the east of the Groundwater Building with one returning pair to complete the logical ring. A third pair of fibers will service the well vaults to the west of the Groundwater Building with another returning pair to complete the second logical ring. Each of these fiber rings will daisy chain starting from the four FO ports of the I/O network switch/media converter and then daisy chain from well to well and return from the two furthest well vaults from the Groundwater Building. Note: Two eight port (4FO/4RJ45) switches/media converters are described in section 2.7.1.4.6. These two FO/RJ45 switches will be tied together and then patched over to the PLC I/O NIC module.
- Update to original specification: One additional 8-port, (8-RJ45) will be added to Groundwater building control panel to connect the County provided network gateway appliance. Contractor will provide appropriate CAT6 patch cable to County network gateway appliance. This additional switch will connect to the HMI PC and the 2nd PLC NIC module.
- Update to original specification section 2.6.1.4.6 - Provide optional pricing for upgraded switches that are level one managed. Base price can include non-managed switches. County will decide if upgrade is desired before procurement. Please include option price in pricing proposal on separate sheet.
- Section 2.7.2.11.1.1 describes that each well vault panel include an unmanaged switch (per description) that will allow for the County provided/installed/terminated/tested incoming fiber optic cable from the previous well vault and the outgoing fiber optic cable to the next well vault to connect. One of the RJ45 ports will connect to the I/O rack for communications back to the ground water building PLC. The CONTRACTOR will provide the necessary fiber optic patch cables to connect switches to the County-provided patch panels.
- Update to original specification: Section 2.7.2.6 required Ethernet surge suppressors at each well vault. This is no longer required and can be eliminated from the quote.

Question 31: Are surge suppressors required for analog inputs?

Answer: No.

Question 32: Is it possible to get electrical schematics of existing panels?

Answer: Please refer to response to Question 20.

Question 33: Do site maintenance personnel prefer to stay with Rockwell or would they consider Siemens as an equal alternative?

Answer: The County is open to CONTRACTOR's recommendation to different PLC manufacturers as well as other equipment manufacturers in an effort to purchase quality equipment, while considering cost. The County will evaluate the alternative equipment solutions from each bidder from a standpoint of quality, availability, published maturity

schedule (from equipment manufacturer), availability of local technical/programming support as well as other research data. This evaluation will be factored in when grading each bidder for consideration of contract award. Please refer to the RFP for complete details concerning the bid evaluation process.

Question 34: If Rockwell is utilized would you accept Point I/O versus the 1769 Remote I/O mentioned in the spec.

Answer: Yes, Point I/O can be provided as an alternative to Remote I/O.

Question 35: "Fiber installation by the County"

a. Where will fiber be run? From Groundwater building to each well or pulled in a Ring?

How many fibers between well sites?
Do you have a drawing showing fiber network design?

Answer: Please refer to response to question 13.

Question 36: Is there existing conduit between the well pit and the above ground enclosure for the Flow Meter signal?

Answer: Yes, conduit is available between the well vaults and the well enclosures.

Question 37: Are drawings available for the PLC panel and remote well panels?

Answer: Please refer to response to question 20.

Question 38: Are permits required for panel modification/installation? (licensed Maryland electrician?)

Answer: Yes, an electrical permit must be obtained by a Master Electrician from the County Department of Inspections, Licensing, and Permits.

Attachments

Attachment I Carrs Mills Photo
Attachment II Alpha Ridge Photos
Attachment III Ladder Logic Example
Attachment IV Site Figures
Attachment V Cloud Services Agreement

All other specifications, terms and conditions remain the same.

Please acknowledge addenda by signing below and returning with the proposal. Failure to acknowledge this addendum may be cause for rejection of the proposal.

ADDENDUM RECEIVED BY:

_____ _____
Signature

_____ _____

Company Name Title

Figure 1: Carrs Mill Landfill GWB Enclosure Door Outside

Figure 2: Carrs Mill Landfill GWB Enclosure Door Inside

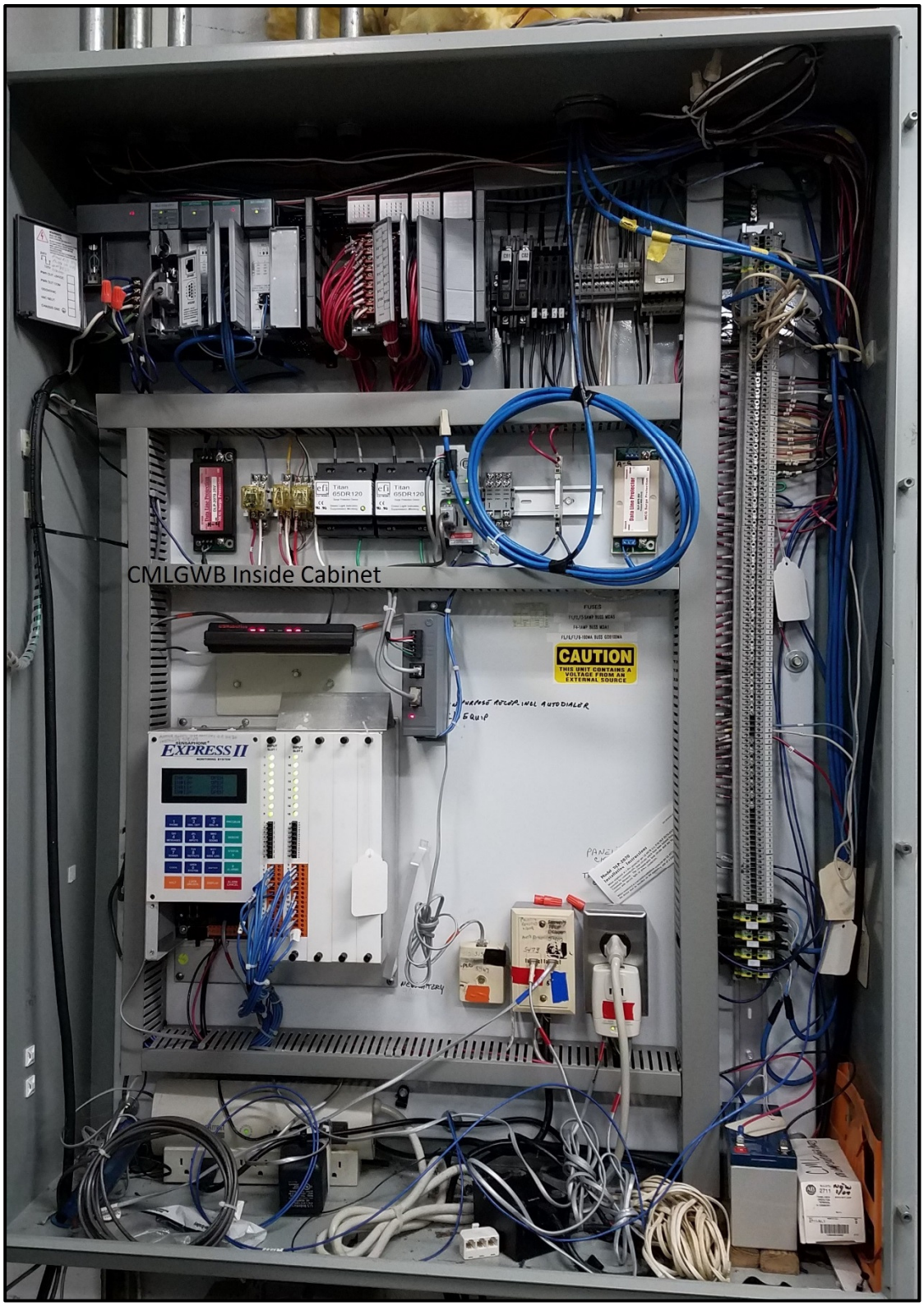

Figure 3: Carrs Mill Landfill GWB Back Panel

Figure 4: Carrs Mill Landfill Well Vault Panel Configuration

Figure 5: Carrs Mill Landfill Well Vault Enclosure Door Outside

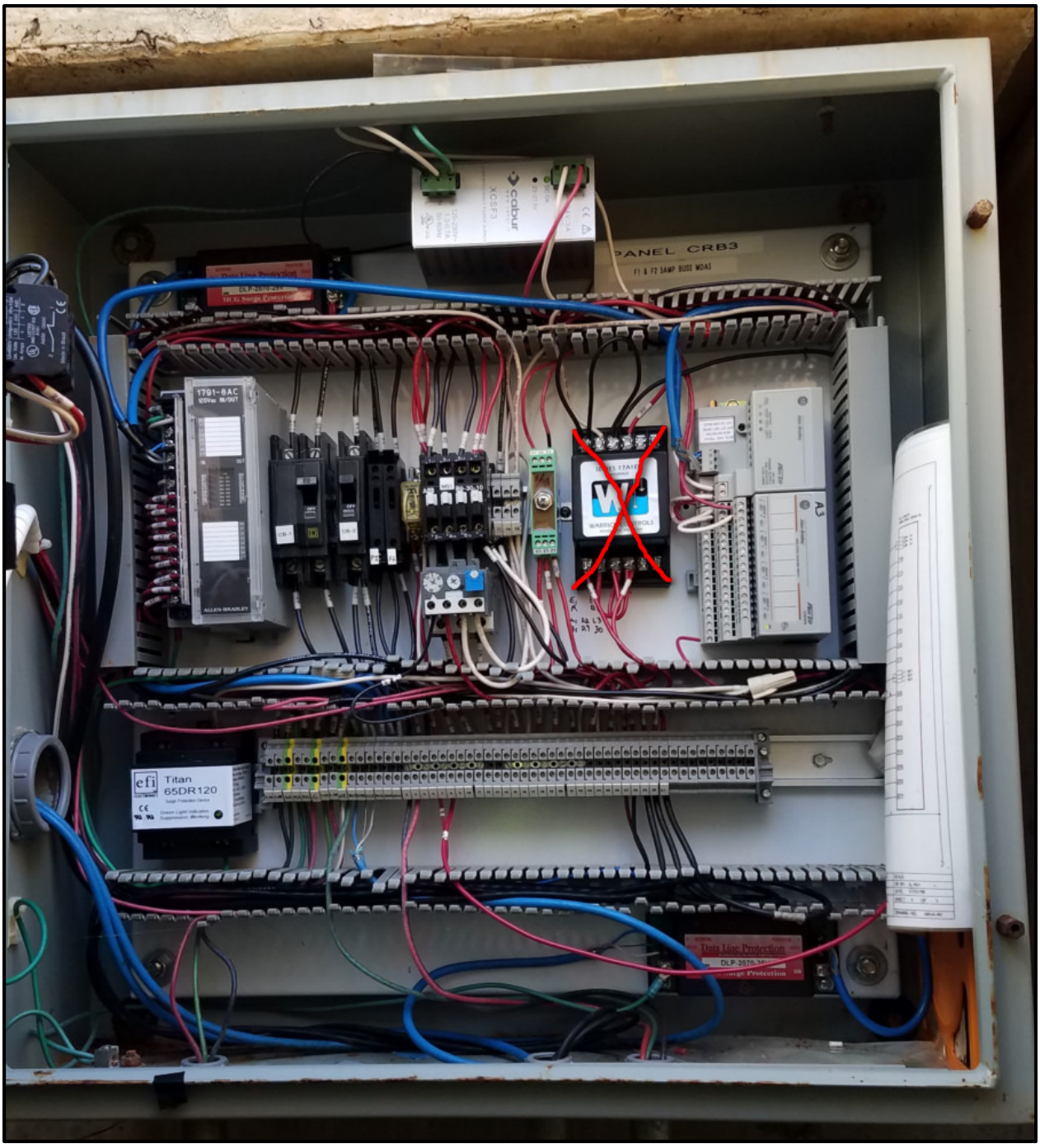

Figure 6: Carrs Mill Landfill Backpanel

Figure 1: Alpha Ridge Landfill GWB Enclosure Door Outside

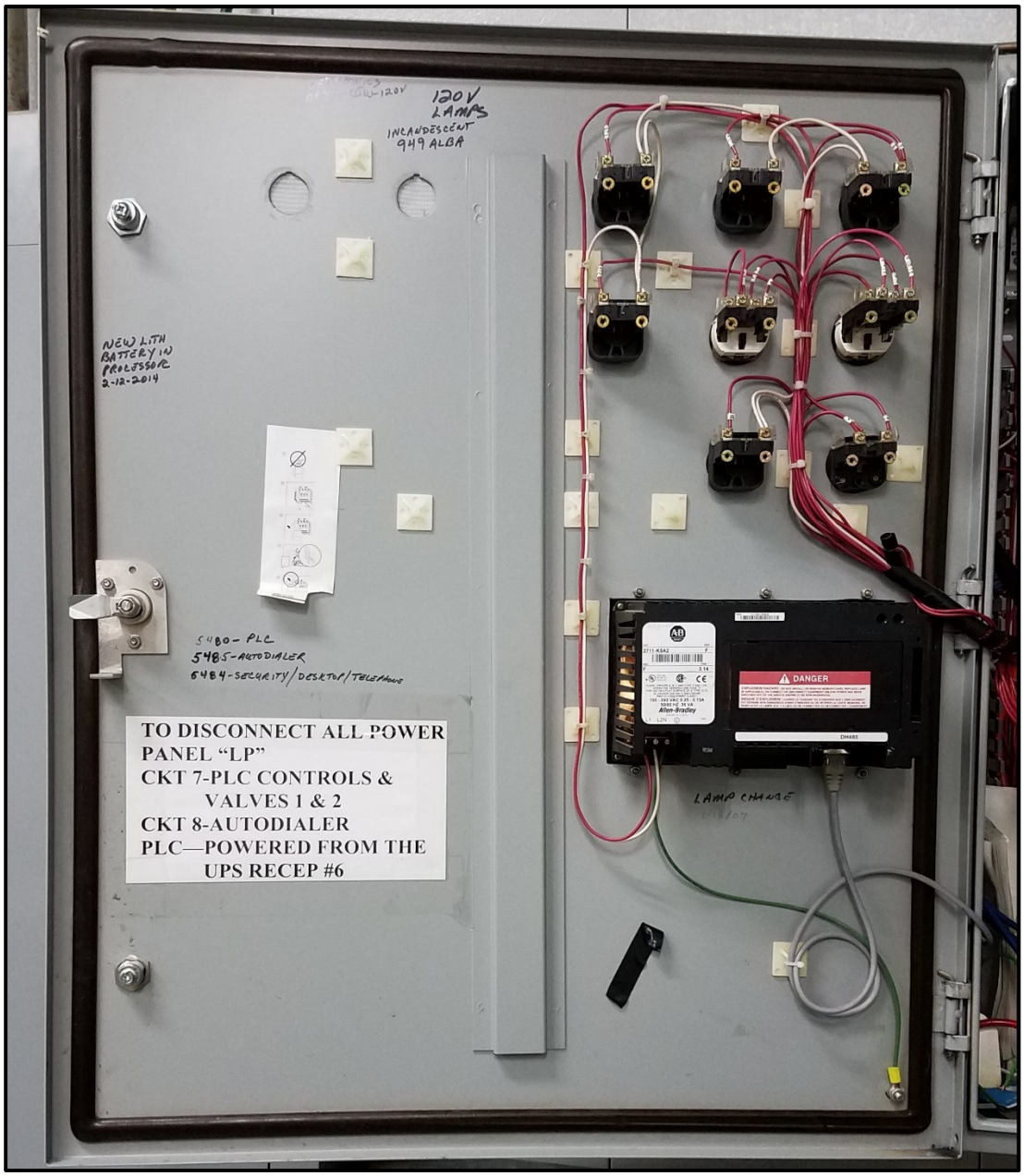

Figure 2: Alpha Ridge Landfill GWB Enclosure Door Inside

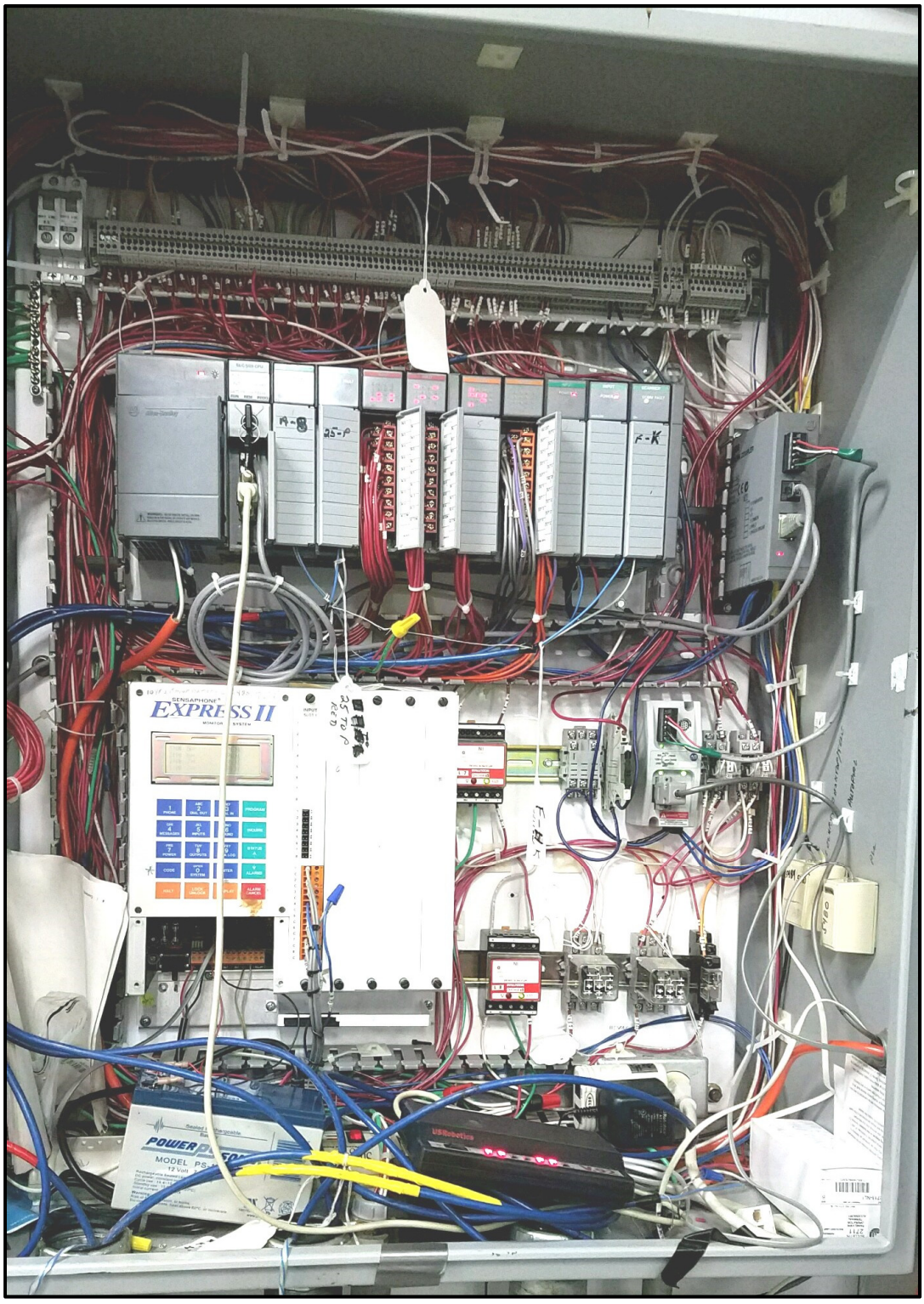

Figure 3: Alpha Ridge Landfill GWB Back Panel

Figure 4: Alpha Ridge Landfill Well Vault Enclosure Door Outside (except wells O & P)

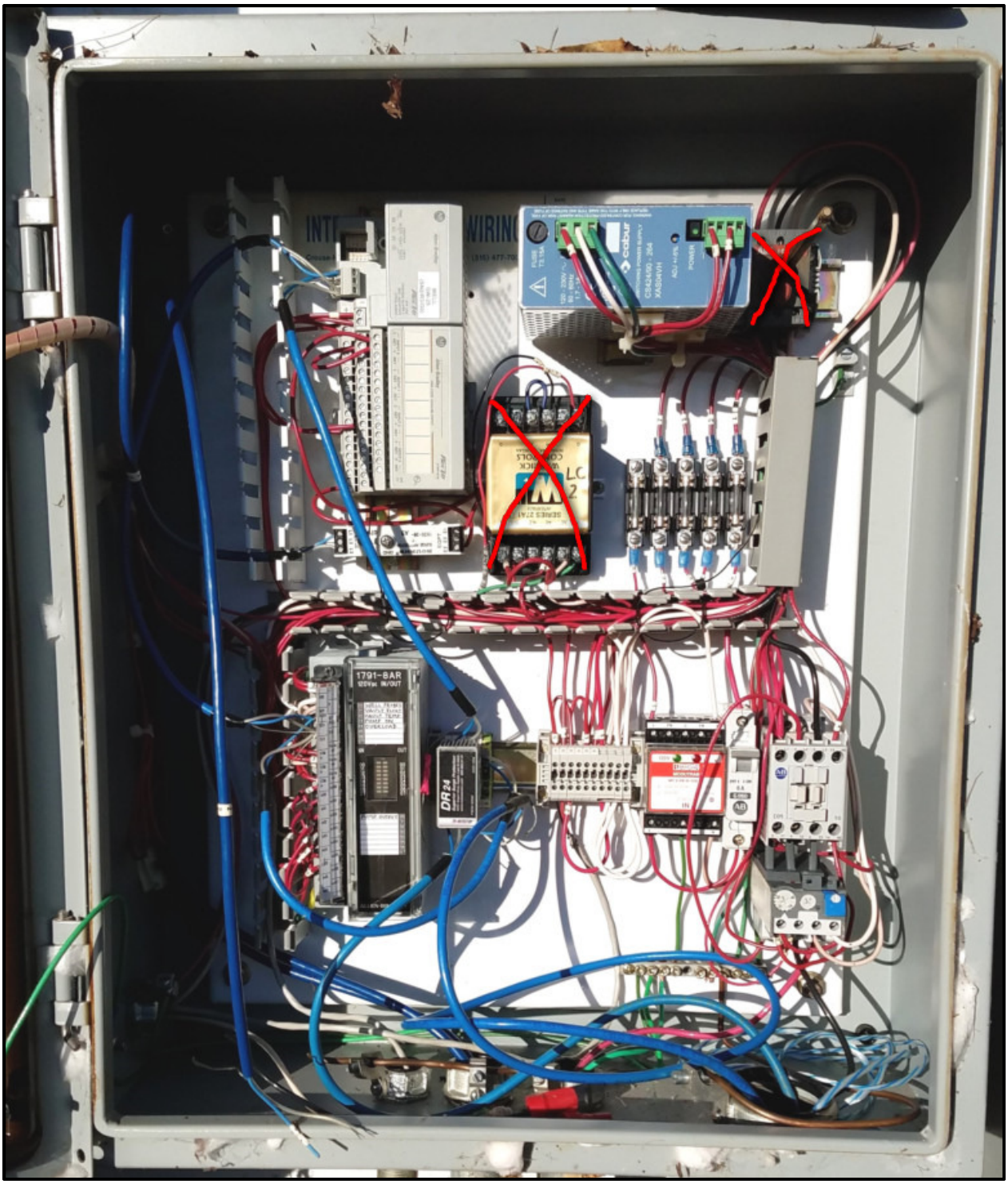

Figure 5: Alpha Ridge Landfill Well Backpanel (except wells O & P)

Figure 6: Alpha Ridge Landfill Well Enclosure (wells O & P)

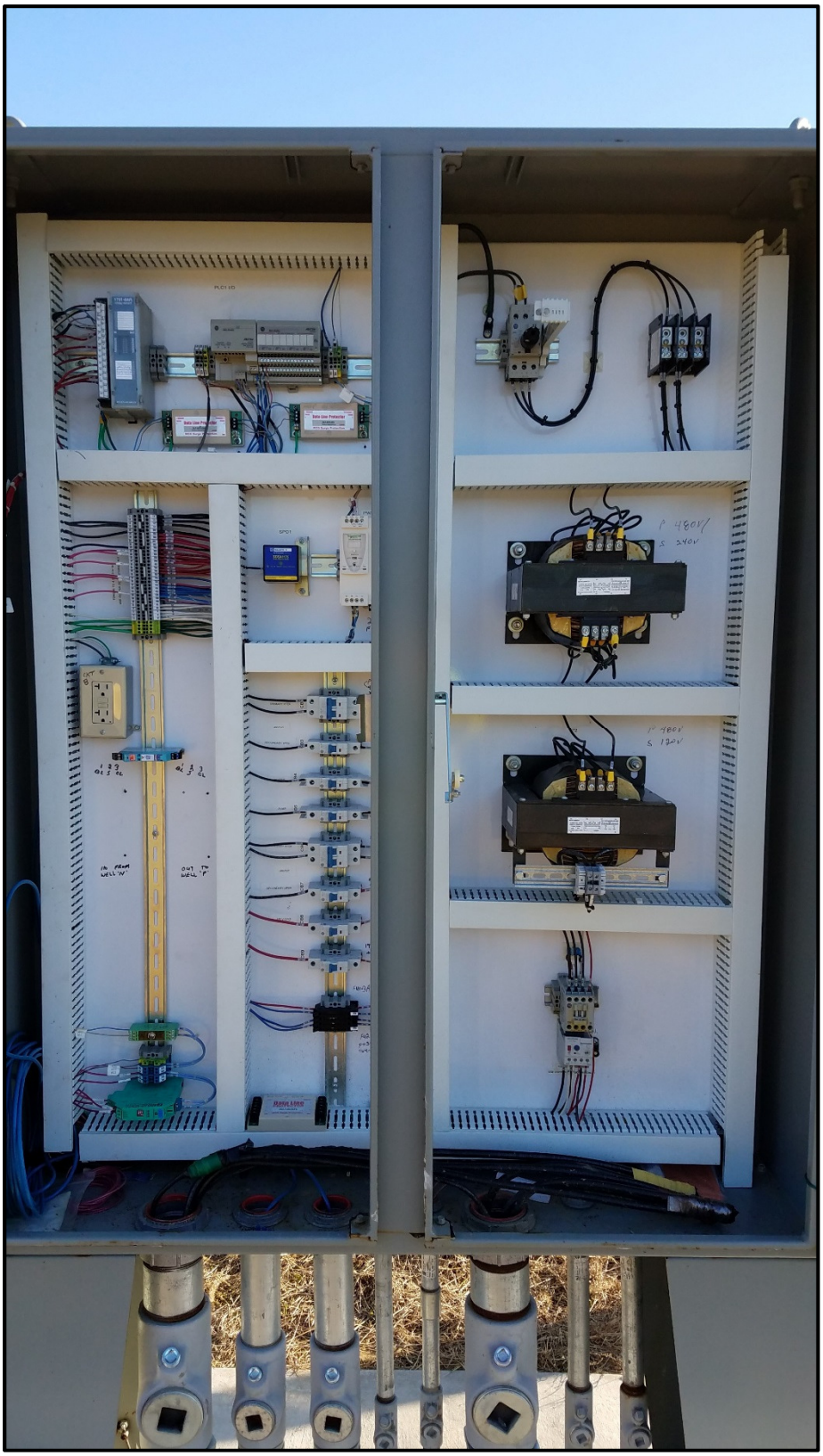

Figure 7: Alpha Ridge Landfill Well backpanel (wells O & P)

NOTE: Added "high LEL level" alarm bit to this rung to de-energize the system on in event of high LEL per customer.

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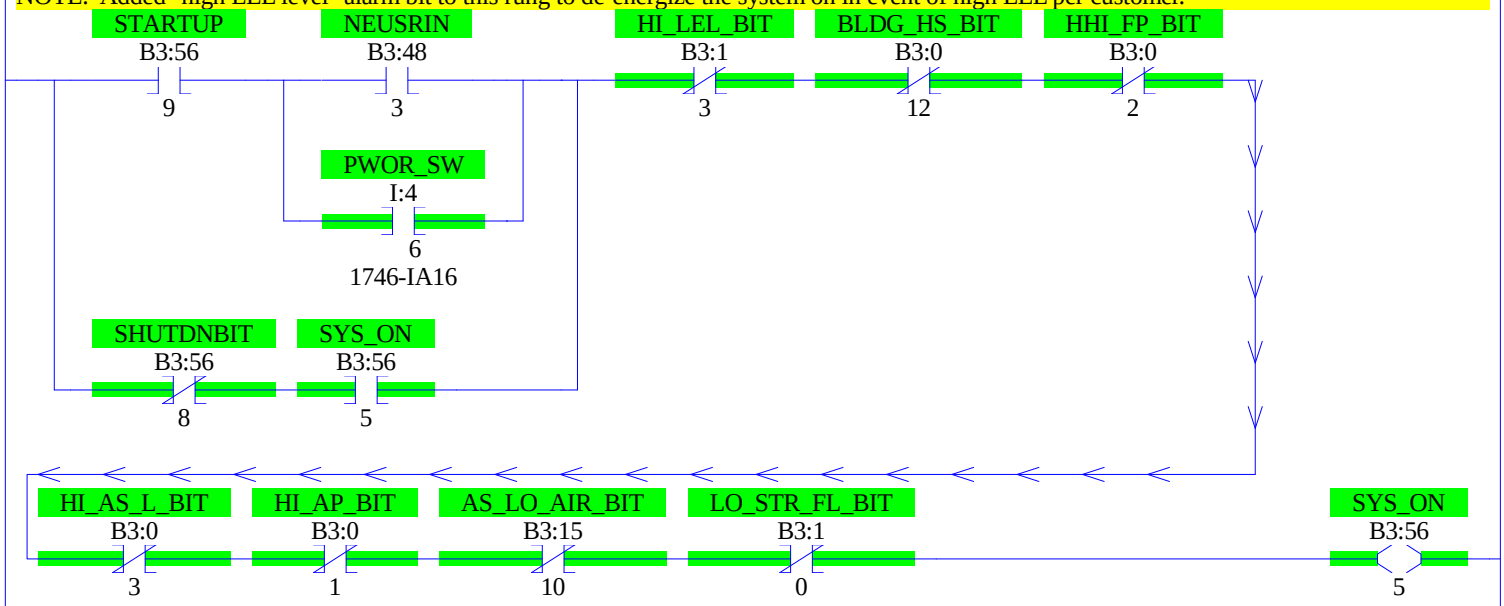
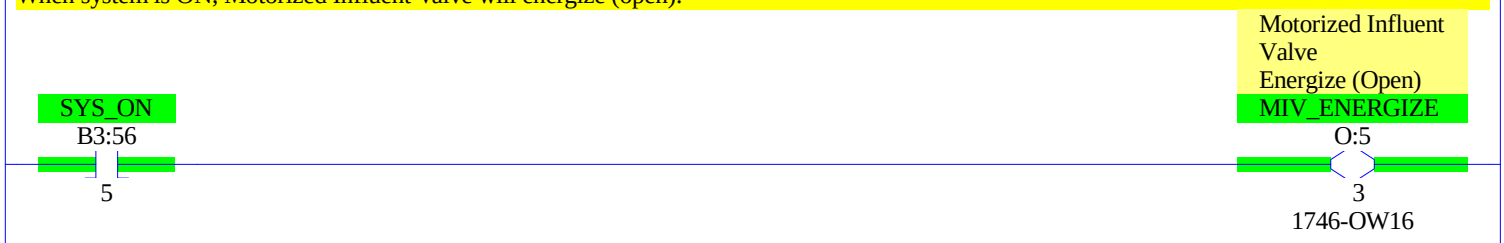


When system is ON, Motorized Influent Valve will energize (open).

0001



Bag filter bank #1 logic. In auto mode, air stripper blower motor running opens and closes bank. In manual mode, Panelview controls opening and closing.

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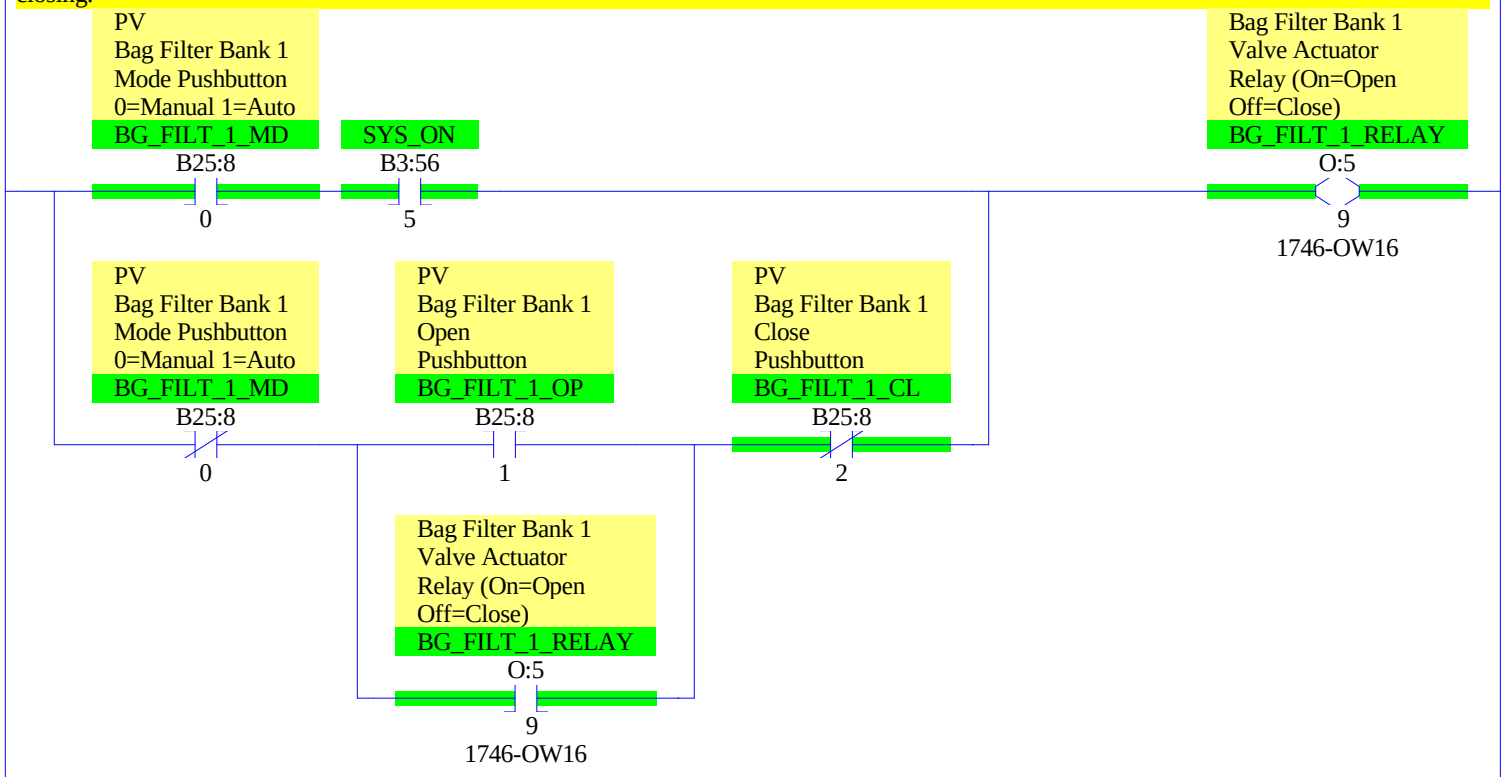
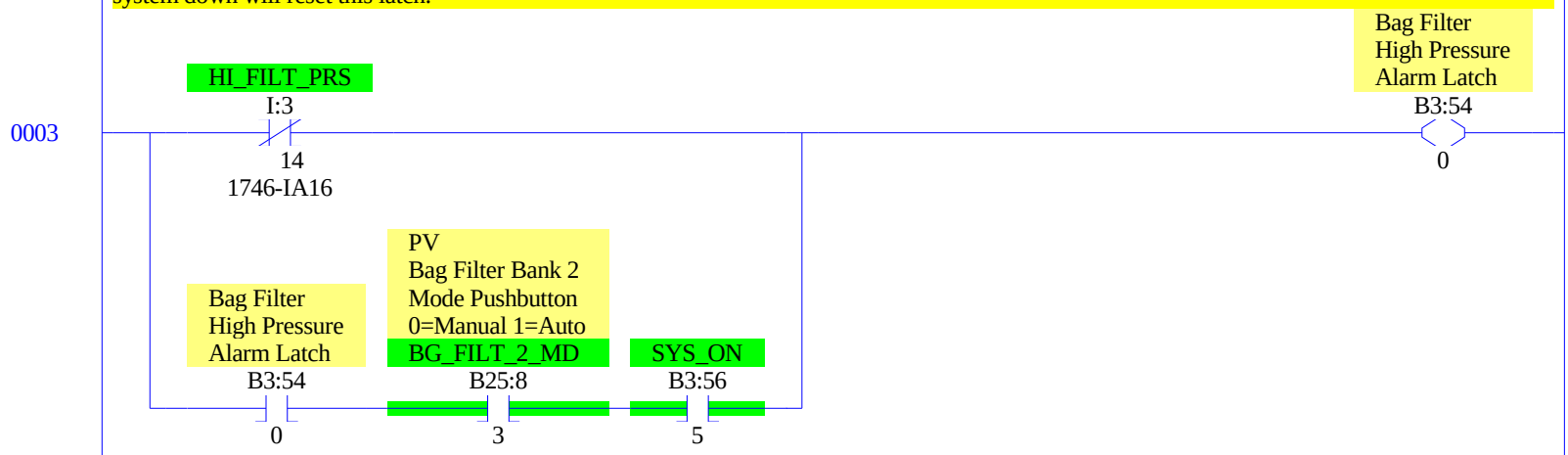
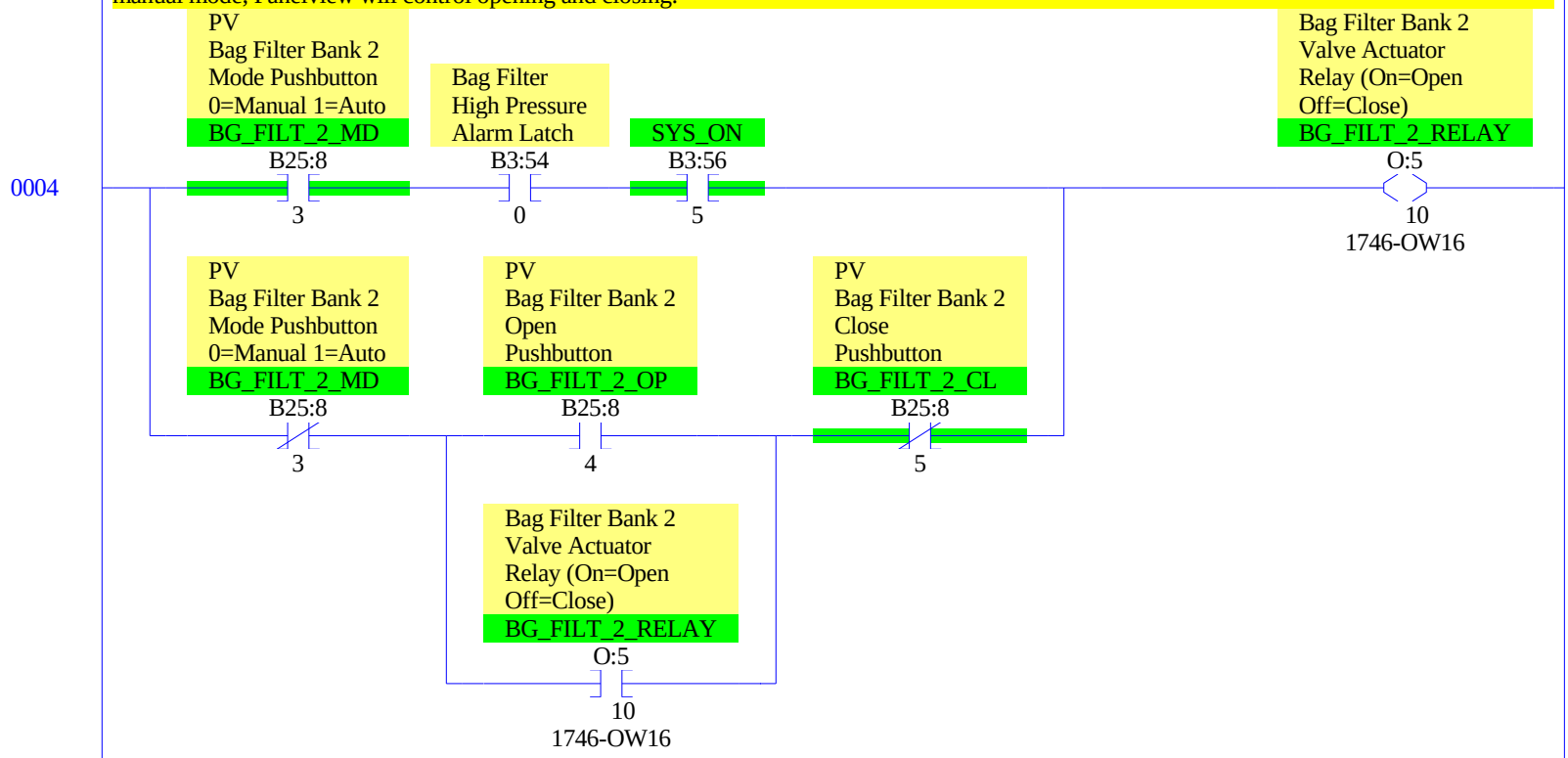
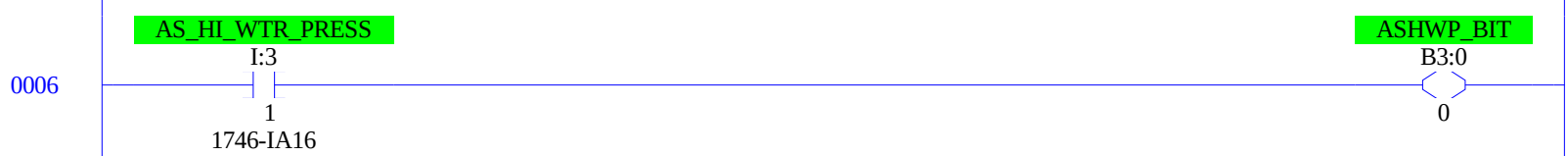


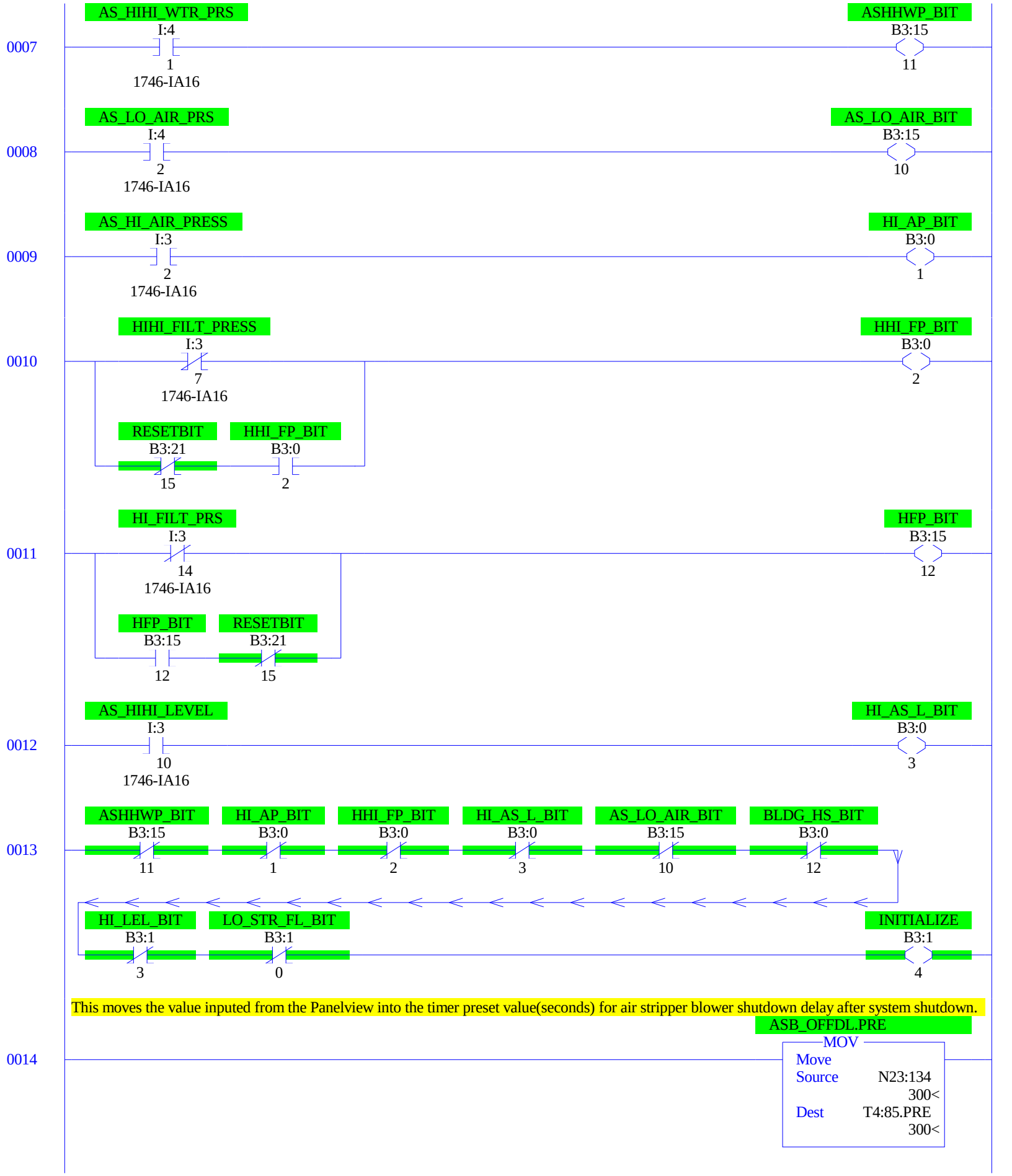
High filter pressure alarm will pull in bit and latch to control opening of bag filter bank #2. Changing the mode of the bag filter bank 2 or shutting system down will reset this latch.

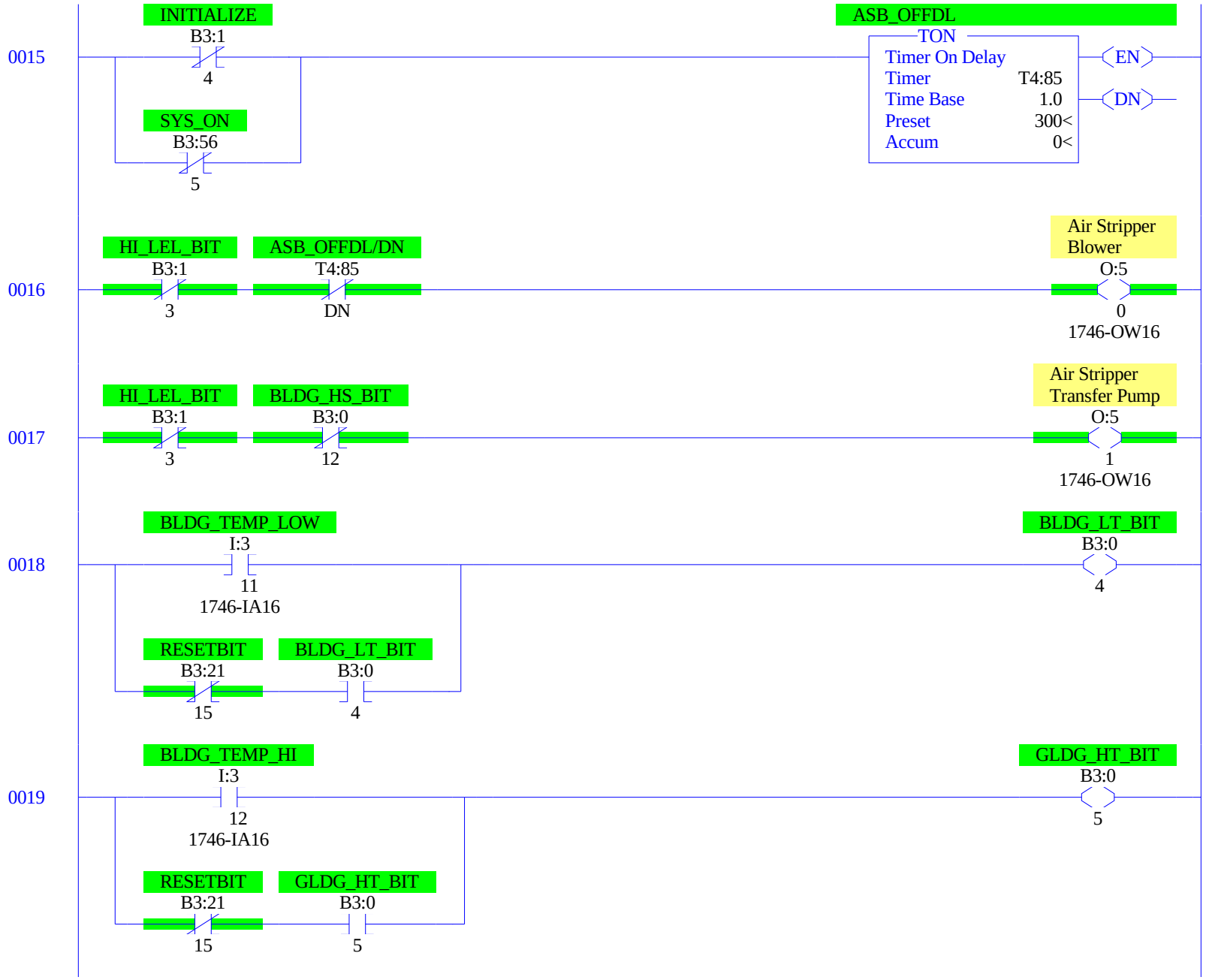


Bag filter bank #2 control logic. In auto mode, high pressure alarm latch and air stripper blower motor running will open bag filter bank #2. In manual mode, Panelview will control opening and closing.






0007
AS_HIHI_WTR_PRS
I:4
1
1746-IA16
ASHHWP_BIT
B3:15
11
0008
AS_LO_AIR_PRS
I:4
2
1746-IA16
AS_LO_AIR_BIT
B3:15
10
0009
AS_HI_AIR_PRESS
I:3
2
1746-IA16
HI_AP_BIT
B3:0
1
0010
HIHI_FILT_PRESS
I:3
7
1746-IA16
HHI_FP_BIT
B3:0
2
RESETBIT
B3:21
15
HHI_FP_BIT
B3:0
2
0011
HI_FILT_PRS
I:3
14
1746-IA16
HFP_BIT
B3:15
12
HFP_BIT
B3:15
12
RESETBIT
B3:21
15
0012
AS_HIHI_LEVEL
I:3
10
1746-IA16
HI_AS_L_BIT
B3:0
3
0013
ASHHWP_BIT
B3:15
11
HI_AP_BIT
B3:0
1
HHI_FP_BIT
B3:0
2
HI_AS_L_BIT
B3:0
3
AS_LO_AIR_BIT
B3:15
10
BLDG_HS_BIT
B3:0
12
HI_LEL_BIT
B3:1
3
LO_STR_FL_BIT
B3:1
0
INITIALIZE
B3:1
4
This moves the value inputed from the Panelview into the timer preset value(seconds) for air stripper blower shutdown delay after system shutdown.
0014
ASB_OFFDL.PRE
MOV
Move
Source N23:134
300<
Dest T4:85.PRE
300<


0015
INITIALIZE
B3:1
4
SYS_ON
B3:56
5
ASB_OFFDL
TON
Timer On Delay
Timer T4:85
Time Base 1.0
Preset 300<
Accum 0<
EN
DN
0016
HI_LEL_BIT
B3:1
3
ASB_OFFDL/DN
T4:85
DN
Air Stripper Blower
O:5
0
1746-OW16
0017
HI_LEL_BIT
B3:1
3
BLDG_HS_BIT
B3:0
12
Air Stripper Transfer Pump
O:5
1
1746-OW16
0018
BLDG_TEMP_LOW
I:3
11
1746-IA16
RESETBIT
B3:21
15
BLDG_LT_BIT
B3:0
4
BLDG_LT_BIT
B3:0
4
0019
BLDG_TEMP_HI
I:3
12
1746-IA16
RESETBIT
B3:21
15
GLDG_HT_BIT
B3:0
5
GLDG_HT_BIT
B3:0
5

NOTE: Add the last timer from startup here so that low flow detection won't happen until after all pumps have started.

0020

WTR_FL_GPM
LES
Less Than (A<B)
Source A N7:1 75<
Source B 20 20<

RESETBIT B3:21 15
DSC_BF_BIT B3:0 13
SYS_ON B3:56 5
ASHHWP_BIT B3:15 11
HI_AP_BIT B3:0 1

HHI_FP_BIT B3:0 2
HI_AS_L_BIT B3:0 3
AS_LO_AIR_BIT B3:15 10
BLDG_HS_BIT B3:0 12
HI_LEL_BIT B3:1 3
N_DELAY/DN T4:79 DN

LO_WTR_FLO_TMR
TON
Timer On Delay
Timer T4:20
Time Base 1.0
Preset 300<
Accum 0<
EN
DN

0021

LO_WTR_FLO_TMR/DN T4:20 DN
MS_ASB_AUX I:3 3 1746-IA16
LO_STR_FL_BIT B3:1 0

RESETBIT B3:21 15
LO_STR_FL_BIT B3:1 0

0022

WTR_TMP_DF
SCP
Scale w/Parameters
Input I:7.1 5012<
Input Min. 3277 3277<
Input Max. 16384 16384<
Scaled Min. 0 0<
Scaled Max. 501 501<
Output N7:2 66<

A Well Pump Logic

If PV mode is in Auto and well level is less than start setpoint, energize start level made timer. (3 second delay)

0000

PV Well A Mode (0=Manual 1=Auto) MODE_WELL_A_PV
B25:0
0

Well A Transducer Level LEVEL_A_ACT

LEQ
Less Than or Eql (A<=B)
Source A N20:0 70<
Source B N22:0 68<

A Well Start Level Made Time Delay (3 sec)

TON
Timer On Delay
Timer T32:0
Time Base 0.01
Preset 300<
Accum 0<
EN
DN

If PV mode is in Auto and start level timer is done and stop level timer is not done, energize pump run request and latch around start level made contact.

0001

Well A Level Error Pump Disable
B3:45
0

PV Well A Mode (0=Manual 1=Auto) MODE_WELL_A_PV
B25:0
0

A Well Start Level Made Time Delay (3 sec)
T32:0
DN

A Well Stop Level Made Time Delay (3 sec)
T32:1
DN

Well A Automatic Pump Run Request
B3:25
0

Well A Automatic Pump Run Request
B3:25
0

If PV mode is in Auto and well level is greater than stop setpoint, energize stop level made timer. (3 second delay)

0002

PV Well A Mode (0=Manual 1=Auto) MODE_WELL_A_PV
B25:0
0

Well A Transducer Level LEVEL_A_ACT

GEQ
Grtr Than or Eql (A>=B)
Source A N20:0 70<
Source B N21:0 85<

A Well Stop Level Made Time Delay (3 sec)

TON
Timer On Delay
Timer T32:1
Time Base 0.01
Preset 300<
Accum 0<
EN
DN

If remote HOA is in Auto and PV mode is Auto allow pump run request to control pump after startup delay timer is complete. Prevent motor from starting or stop motor if and faults are present. If PV mode is set to manual, use the start & stop PBs on the PV to allow manual operation of motor.

0003

A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN

PV Well A Mode (0=Manual 1=Auto)
MODE_WELL_A_PV
B25:0
0

Well A Automatic Pump Run Request
B3:25
0

A_DELAY/DN
T4:60
DN

PV Well A Mode (0=Manual 1=Auto)
MODE_WELL_A_PV
B25:0
0

PV Well A Start PB
START_WELL_A_PV
B25:2
0

PV Well A STOP PB
STOP_WELL_A_PV
B25:4
0

A Pump Running
A_MS_AUX
I:1
3
1747-SN

A_OL_BIT
B3:9
6

Well A Pump Off Timer Lock Out
B3:25
2

XS_A
B3:20
0

VAULT_A_LV_BIT
B3:5
0

Well A Level Error Pump Disable
B3:45
0

A Well Pump Start/Stop
A_WELL_PUMP_SS
O:1
0
1747-SN

Pump Cycle Counter.

0004

A Pump Running
A_MS_AUX
I:1
3
1747-SN

ONE SHOT
B3:49
OSR
0

CYCLE_A
CTU
Count Up
Counter C5:50
Preset 1000<
Accum 108<
CU
DN

0005

CYCLE_A/DN
C5:50
DN

Well A Pump Cycle 1K
CYCLE_1K_A
ADD
Add
Source A 1
1<
Source B N23:101
24<
Dest N23:101
24<

CYCLE_A
C5:50
RES

Following rungs are logic for tracking pump run hours.

0006

A Pump Running
A_MS_AUX
I:1
3
1747-SN

B3:56
0

RUN_A_SECOND
CTU
Count Up
Counter C5:70
Preset 3600<
Accum 1991<
CU
DN

0007

RUN_A_SECOND/DN
C5:70
DN

Well A Pump Run Hours
WELL_A_RUN_HOURS
ADD
Add
Source A 1
1<
Source B N23:54
328<
Dest N23:54
328<

RUN_A_SECOND
C5:70
RES

0008

Well A Pump Run Hours
WELL_A_RUN_HOURS
EQU
Equal
Source A N23:54
328<
Source B 1000
1000<

Well A Pump Run 1K Hours
WELL_A_RUN_KHOURS
ADD
Add
Source A 1
1<
Source B N23:77
50<
Dest N23:77
50<

Well A Pump Run Hours
WELL_A_RUN_HOURS
MOV
Move
Source 0
0<
Dest N23:54
328<

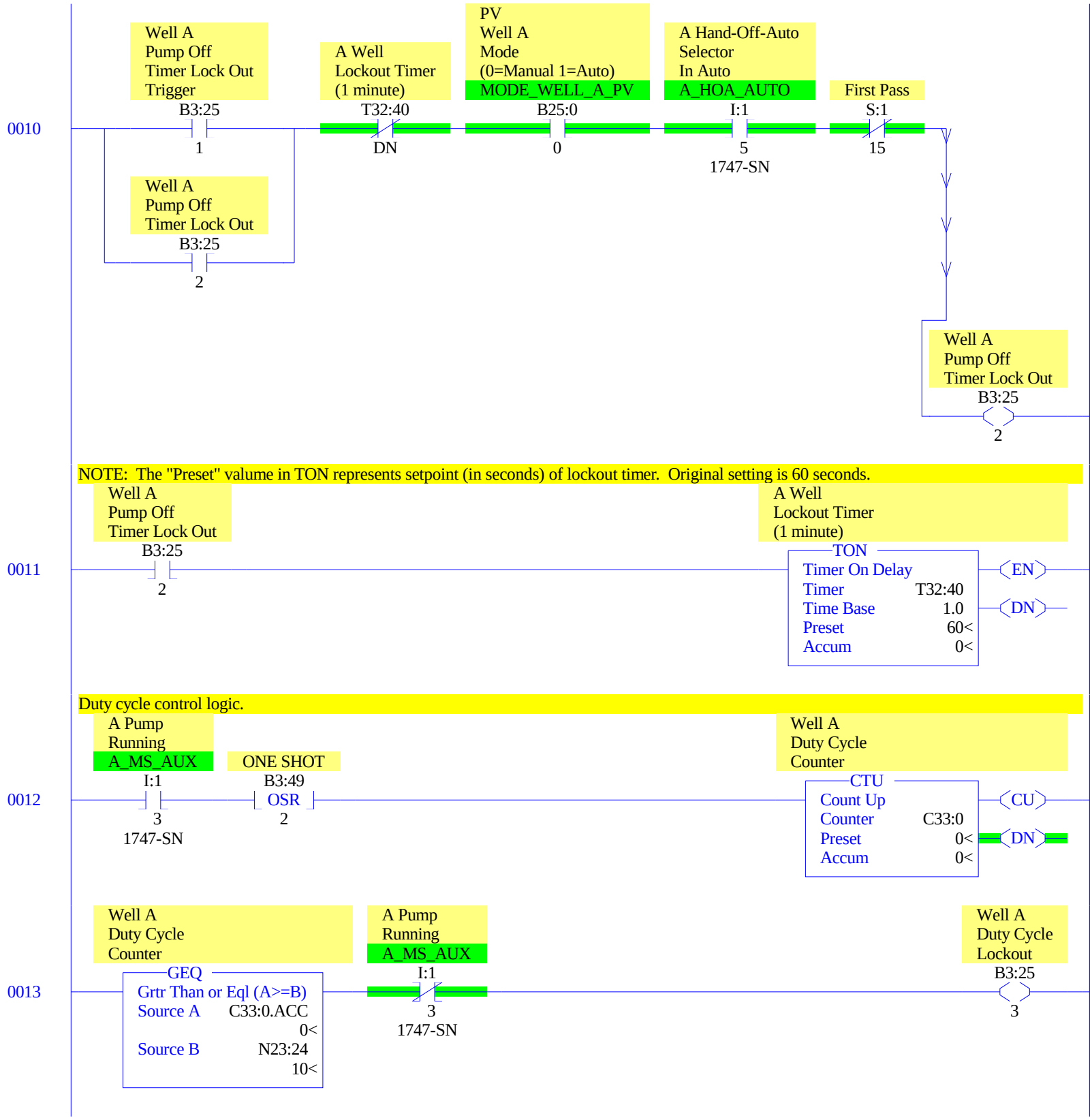
Following rungs generate Pump Off lock out logic. This prevents pump from restarting for the duration of the timer.

0009

A Pump Running
A_MS_AUX
I:1
3
1747-SN

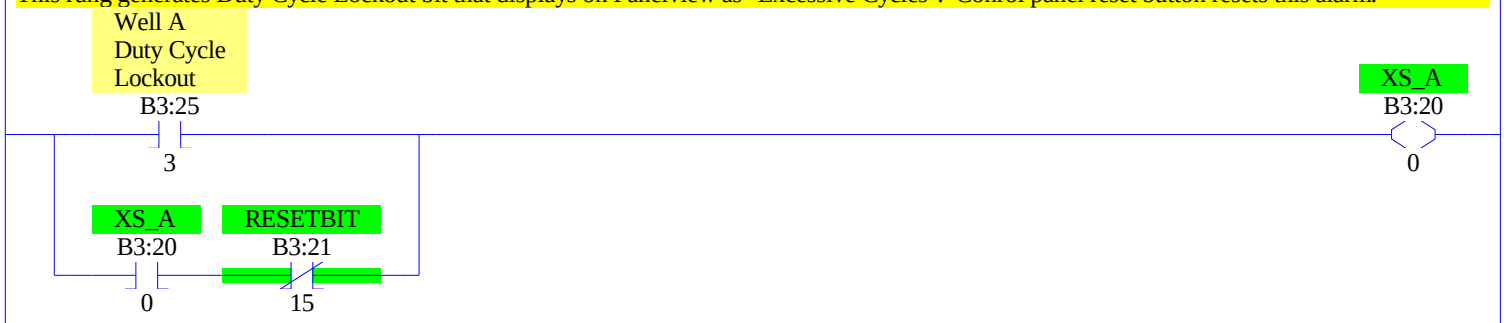
ONE SHOT
B3:49
OSR
1

Well A Pump Off Timer Lock Out Trigger
B3:25
1


Well A Pump Off Timer Lock Out Trigger
B3:25
1
A Well Lockout Timer (1 minute)
T32:40
DN
PV Well A Mode (0=Manual 1=Auto)
MODE_WELL_A_PV
B25:0
0
A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN
First Pass
S:1
15
Well A Pump Off Timer Lock Out
B3:25
2
0010
Well A Pump Off Timer Lock Out
B3:25
2
NOTE: The "Preset" valume in TON represents setpoint (in seconds) of lockout timer. Original setting is 60 seconds.
Well A Pump Off Timer Lock Out
B3:25
2
A Well Lockout Timer (1 minute)
0011
TON
Timer On Delay
Timer T32:40
Time Base 1.0
Preset 60<
Accum 0<
EN
DN
Duty cycle control logic.
A Pump Running
A_MS_AUX
I:1
3
1747-SN
ONE SHOT
B3:49
OSR
2
Well A Duty Cycle Counter
0012
CTU
Count Up
Counter C33:0
Preset 0<
Accum 0<
CU
DN
Well A Duty Cycle Counter
GEQ
Grtr Than or Eql (A>=B)
Source A C33:0.ACC
0<
Source B N23:24
10<
A Pump Running
A_MS_AUX
I:1
3
1747-SN
Well A Duty Cycle Lockout
B3:25
3
0013

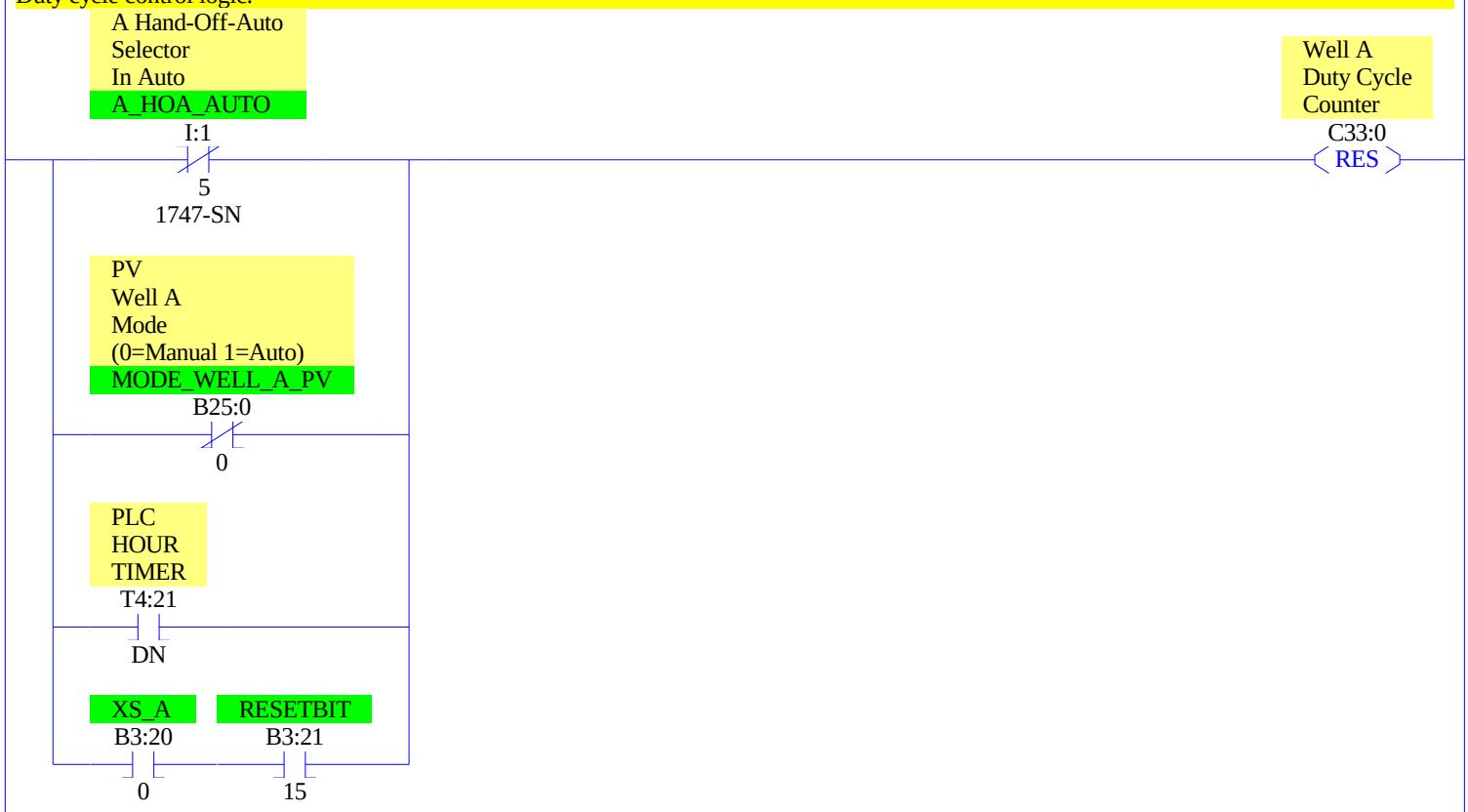
This rung generates Duty Cycle Lockout bit that displays on Panelview as "Excessive Cycles". Conrol panel reset button resets this alarm.

0014



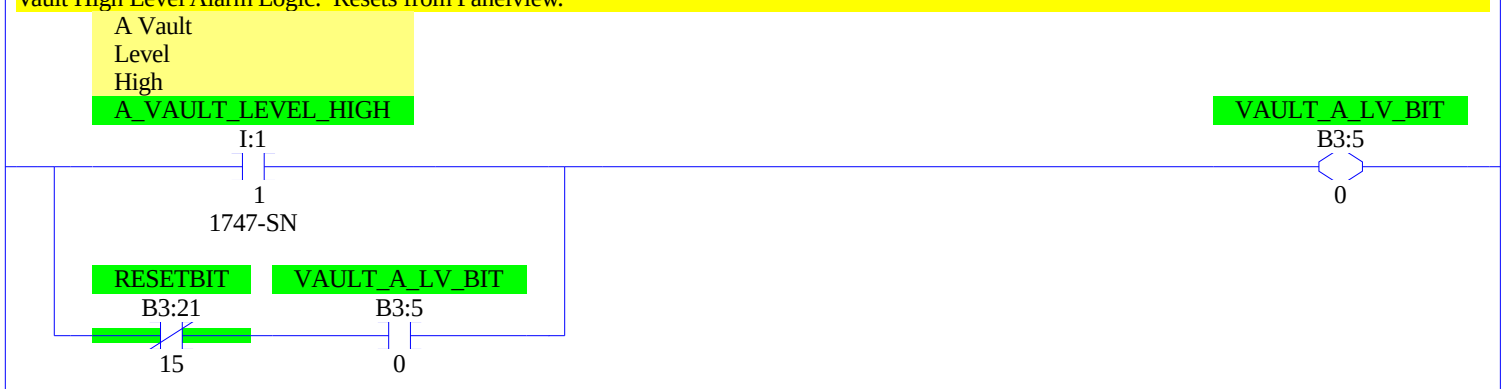
Duty cycle control logic.

0015



Vault High Level Alarm Logic. Resets from Panelview.

0016



Vault High Temperature Alarm Logic. Resets from Panelview.

0017

A Vault Temperature High
A_VAULT_TEMP_HIGH
I:1
2
1747-SN

VAULT_A_T_BIT
B3:6
4

RESETBIT
B3:21
15

VAULT_A_T_BIT
B3:6
4

Pump Motor Overload.

0018

A Pump Overload
A_MS_OL
I:1
4
1747-SN

A_OL_BIT
B3:9
6

0019

A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN

Well A Remote HOA NOT in Auto PV Alarm
REM_HOA_ALRM_A
B25:6
0

Remote (Well) mode indication. 0=Hand, 1=Off, 2=Auto.

0020

A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN

Well A Remote Mode (0=Auto 1=Manual 2=Off)
WELL_A_REM_MODE

MOV
Move Source 0
Dest N23:0

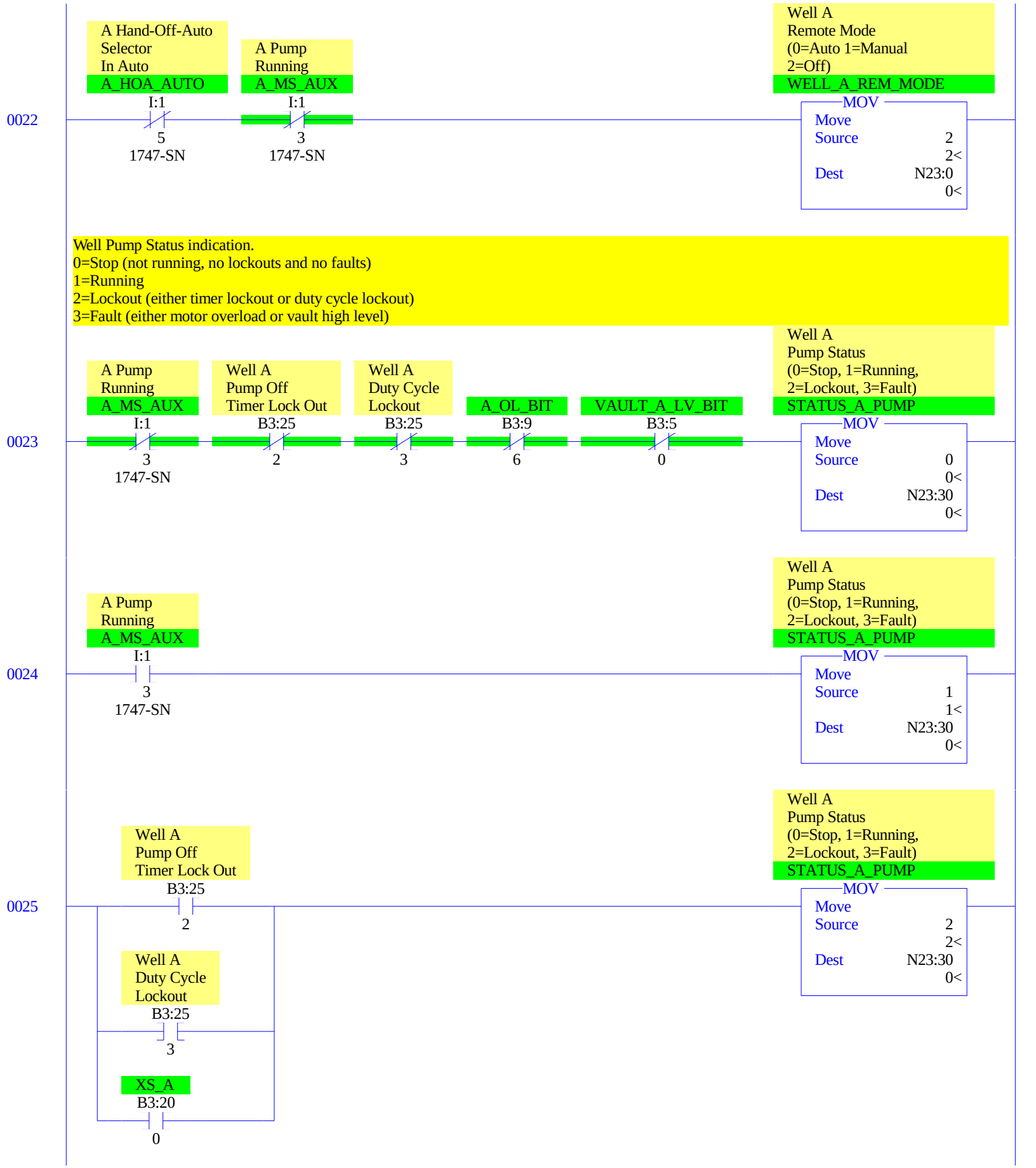
0021

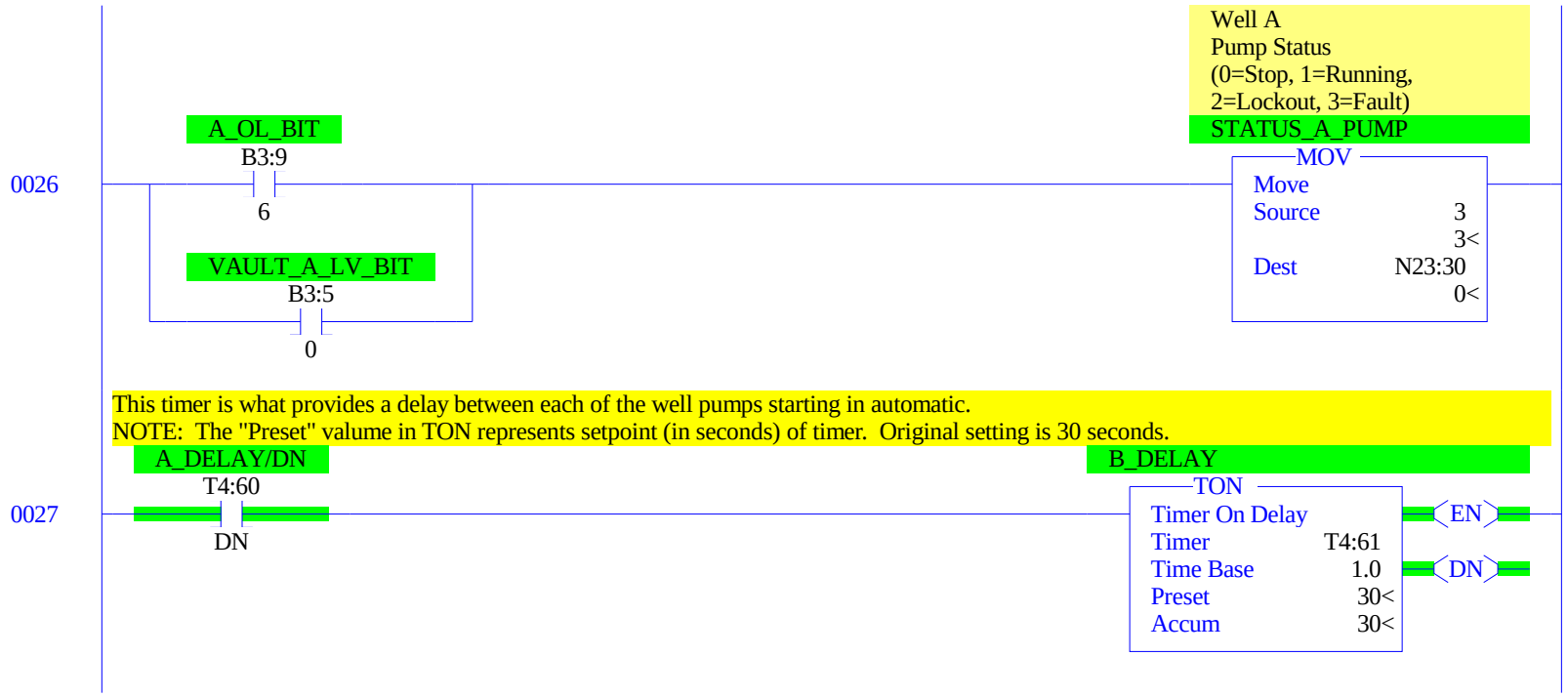
A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN

A Pump Running
A_MS_AUX
I:1
3
1747-SN

Well A Remote Mode (0=Auto 1=Manual 2=Off)
WELL_A_REM_MODE

MOV
Move Source 1
Dest N23:0


A Hand-Off-Auto Selector In Auto
A_HOA_AUTO
I:1
5
1747-SN
A Pump Running
A_MS_AUX
I:1
3
1747-SN
Well A Remote Mode (0=Auto 1=Manual 2=Off)
WELL_A_REM_MODE
MOV
Move
Source 2
2<
Dest N23:0
0<
0022
Well Pump Status indication.
0=Stop (not running, no lockouts and no faults)
1=Running
2=Lockout (either timer lockout or duty cycle lockout)
3=Fault (either motor overload or vault high level)
A Pump Running
A_MS_AUX
I:1
3
1747-SN
Well A Pump Off Timer Lock Out
B3:25
2
Well A Duty Cycle Lockout
B3:25
3
A_OL_BIT
B3:9
6
VAULT_A_LV_BIT
B3:5
0
Well A Pump Status (0=Stop, 1=Running, 2=Lockout, 3=Fault)
STATUS_A_PUMP
MOV
Move
Source 0
0<
Dest N23:30
0<
0023
A Pump Running
A_MS_AUX
I:1
3
1747-SN
Well A Pump Status (0=Stop, 1=Running, 2=Lockout, 3=Fault)
STATUS_A_PUMP
MOV
Move
Source 1
1<
Dest N23:30
0<
0024
Well A Pump Off Timer Lock Out
B3:25
2
Well A Duty Cycle Lockout
B3:25
3
XS_A
B3:20
0
Well A Pump Status (0=Stop, 1=Running, 2=Lockout, 3=Fault)
STATUS_A_PUMP
MOV
Move
Source 2
2<
Dest N23:30
0<
0025


Well A
Pump Status
(0=Stop, 1=Running,
2=Lockout, 3=Fault)
STATUS_A_PUMP
0026
A_OL_BIT
B3:9
6
VAULT_A_LV_BIT
B3:5
0
MOV
Move
Source 3
3<
Dest N23:30
0<
This timer is what provides a delay between each of the well pumps starting in automatic.
NOTE: The "Preset" valume in TON represents setpoint (in seconds) of timer. Original setting is 30 seconds.
0027
A_DELAY/DN
T4:60
DN
B_DELAY
TON
Timer On Delay
Timer T4:61
Time Base 1.0
Preset 30<
Accum 30<
EN
DN

ATTACHMENT IV

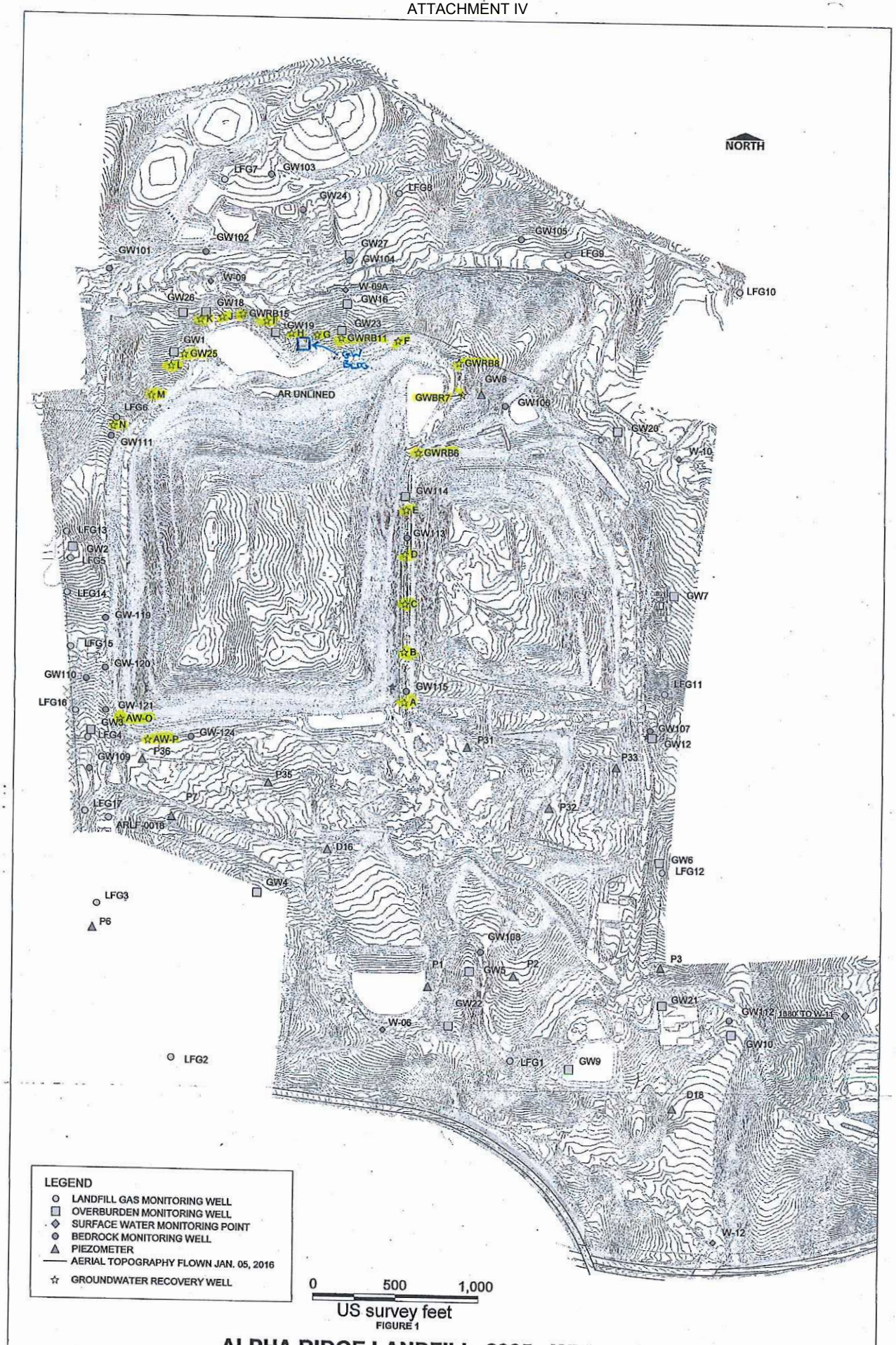
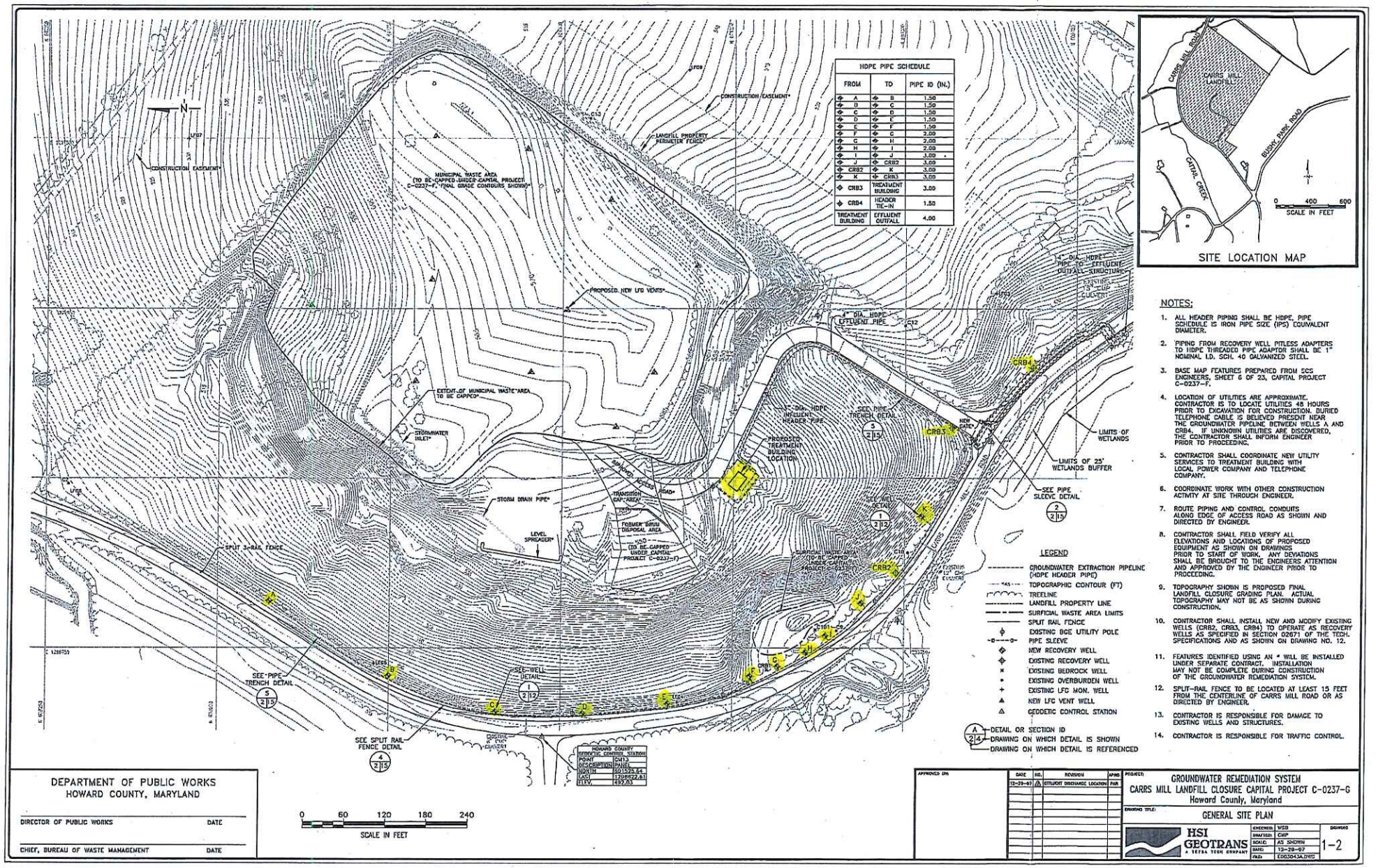


FIGURE 1

ALPHA RIDGE LANDFILL, 2005 - WMF - 0110
STUDY DATE: JANUARY 05, 2016

ATTACHMENT IV



SITE LOCATION MAP

NOTES:

1. ALL HEADER PIPING SHALL BE HDPE. PIPE SCHEDULE IS IRON PIPE SIZE (IPS) EQUIVALENT DIAMETER.
2. PIPING FROM RECOVERY WELL PITLESS ADAPTERS TO HDPE THREADED PIPE ADAPTOR SHALL BE 1" NOMINAL I.D. SCH. 40 GALVANIZED STEEL.
3. BASE MAP FEATURES PREPARED FROM SCS ENGINEERS, SHEET 6 OF 23, CAPITAL PROJECT C-0237-F.
4. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR IS TO LOCATE UTILITIES 48 HOURS PRIOR TO EXCAVATION FOR CONSTRUCTION. BURIED TELEPHONE CABLE IS BELIEVED PRESENT NEAR THE GROUNDWATER PIPELINE BETWEEN WELLS A AND CRB4. IF UNKNOWN UTILITIES ARE DISCOVERED, THE CONTRACTOR SHALL INFORM ENGINEER PRIOR TO PROCEEDING.
5. CONTRACTOR SHALL COORDINATE NEW UTILITY SERVICES TO TREATMENT BUILDING WITH LOCAL POWER COMPANY AND TELEPHONE COMPANY.
6. COORDINATE WORK WITH OTHER CONSTRUCTION ACTIVITY AT SITE THROUGH ENGINEER.
7. ROUTE PIPING AND CONTROL CONDUITS ALONG EDGE OF ACCESS ROAD AS SHOWN AND DIRECTED BY ENGINEER.
8. CONTRACTOR SHALL FIELD VERIFY ALL ELEVATIONS AND LOCATIONS OF PROPOSED EQUIPMENT AS SHOWN ON DRAWINGS PRIOR TO START OF WORK. ANY DEVIATIONS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION AND APPROVED BY THE ENGINEER PRIOR TO PROCEEDING.
9. TOPOGRAPHY SHOWN IS PROPOSED FINAL LANDFILL CLOSURE GRADING PLAN. ACTUAL TOPOGRAPHY MAY NOT BE AS SHOWN DURING CONSTRUCTION.
10. CONTRACTOR SHALL INSTALL NEW AND MODIFY EXISTING WELLS (CRB2, CRB3, CRB4) TO OPERATE AS RECOVERY WELLS AS SPECIFIED IN SECTION 02671 OF THE TECH. SPECIFICATIONS AND AS SHOWN ON DRAWING NO. 12.
11. FEATURES IDENTIFIED USING AN * WILL BE INSTALLED UNDER SEPARATE CONTRACT. INSTALLATION MAY NOT BE COMPLETE DURING CONSTRUCTION OF THE GROUNDWATER REMEDIATION SYSTEM.
12. SPLIT-RAIL FENCE TO BE LOCATED AT LEAST 15 FEET FROM THE CENTERLINE OF CARRS MILL ROAD OR AS DIRECTED BY ENGINEER.
13. CONTRACTOR IS RESPONSIBLE FOR DAMAGE TO EXISTING WELLS AND STRUCTURES.
14. CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS — DATE

CHIEF, BUREAU OF WASTE MANAGEMENT — DATE

APPROVED DPW

DATE	NO.	REVISION	APVD
12-28-07	1	EFFLUENT DISCHARGE LOCATION	PAR

PROJECT: GROUNDWATER REMEDIATION SYSTEM
CARRS MILL LANDFILL CLOSURE CAPITAL PROJECT C-0237-G
Howard County, Maryland

DRAWING TITLE: GENERAL SITE PLAN

HSI GEOTRANS
A TETRA TECH COMPANY

CHECKED	WSB
DRAWN BY	CMP
SCALE	AS SHOWN
DATE	12-28-07
FILE	E063043.DWG

DRAWING 1-2

Title:	**Project Name or System Name**	Doc ID:	
Subject:	**Cloud Service Provider Survey**	Prepared By:	Author
Prepared for:	**Dept of Technology and Communication Services**	Date(Version):	9/9/2016 v0.7

Howard County
Technology & Communication

Project Name or System Name
Cloud Service Provider Survey

The purpose of this survey is to obtain information about a specific cloud service as it relates to a business need at Howard County Maryland Government ("the County"). The survey responses are used to initiate a security assessment of the cloud service provided. **Responses may be subject to the Freedom of Information Act.**

A) REQUESTOR INFORMATION

Section A is to be completed by the Howard County Maryland Government representative who is requesting information from a cloud service provider (CSP) about a specific cloud service. Complete Section A and send the request to the CSP point of contact. Ask the respondent to complete Section B and return the form to you. Send the completed form to the DTCS Cyber Security Officer for review and disposition.

Project Name:	**Project Name or System Name**		
Request Date:		**Need by Date:**	
Project Department:			
Contact information	**Name/Dept**	**Phone**	**Email**
• **Project Manager**			
• **System Owner**			

Please provide information about the specific cloud services to which the respondent will frame his/her answers.

Cloud Service Provider:				
Provider Website (URL):				
Explain briefly how your department will use this service.				
Types of Data	☐ HIPPA	☐ PII	☐ CJIS	☐ OTHER
Cloud Service Name *(Include version and edition information as applicable.)*			How many licensed users?	
			How many read-only users?	

B) CLOUD SERVICE PROVIDER (CSP) SURVEY

Section B is to be completed by the Cloud Service Provider. Please complete the form and return it via email to the requestor.

Date Survey Received:		**Date Completed:**	
Respondent's Info	**Name/Title**	**Phone**	**Email**

Cloud Service Survey Questions	
1. URL where County will access its data/site (if known)	
2. Terms of Service (attach copy or provide link)	
3. Security and Privacy Policy (attach copy or provide link)	
Data Ownership	
4. Does the CSP reserve the rights to use, disclose, or make public information belonging to the County?	
5. Will the County retain the intellectual property rights of data it owns?	
6. Does the CSP retain rights to the County's information even if the data is removed from the cloud?	
7. Can the County move or transfer its data and the service to another provider at any time?	
8. Can the County export data as needed?	
9. Can the County's data be permanently erased from the cloud, including any backup storage, when the County deletes this data or when the County ends the service?	

Title:	**Project Name or System Name**	Doc ID:	
Subject:	**Cloud Service Provider Survey**	Prepared By:	Author
Prepared for:	**Dept of Technology and Communication Services**	Date(Version):	9/9/2016 v0.7

Additional Selection Considerations	
10. How does the CSP maintain/ensure service availability?	
11. Does the CSP have a service level agreement (SLA) that sets clear expectations for service and serves the business needs of the County?	
12. Can the CSP explain what security features are available, preferably supported by Federal Risk and Authorization Management Program (FedRAMP)?	
13. Has the CSP been the target of or involved in any major security incidents or breaches? What were causes and remediation of previous security incidents or breaches?	
14. Does the CSP provide a simple and clear reporting mechanism for service problems, security, and privacy incidents?	
15. Does the CSP provide regular service management reports and incident problem reports?	
Additional Selection for Data Protection:	
16. Where is the CSPs Data Center Located? *(City, State, and Country)*	
17. Is the CSPs Data Center Co-located? If yes, provide the co-located entity.	
18. Where is the CSPs Disaster Recovery (DR) Center located? *(City, State, and Country)*	
19. How does the CSP maintain physical security?	
20. How does the CSP maintain/ensure data confidentiality?	
21. How are firewalls structured, and what other network security measures are in place?	
22. How does the CSP keep software secure?	
23. Does the CSP submit to audits from independent agencies?	
24. What backup and redundancy capabilities are available?	
25. What kind of protection is available for data during transmission?	
26. Is it possible to connect physical and virtual resources?	
27. Provide storage details for applicable data types.	

C) SURVEY REVIEW

Upon receipt of the completed survey, please review the results and forward to the DTCS Cyber Security Officer (CSO)

CSO Review:	**Information**	**Risk**	**Comments**
	Confidentiality	Low	
	Availability	Low	
	Integrity	Low	
Disposition:			