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Potw Rpts 7/18/13
(43)

Richard, Philip E - DNR

From: Mike.Niebauer@CH2M.com
Sent: Tuesday, July 16, 2013 4:27 PM
To: Martin.LindaB@epamail.epa.gov; Richard, Philip E - DNR; Endsley, Erin A - DNR
Subject: Shutdown and Startup Plan
Attachments: PW Shutdown Plan_May_2013.pdf

Sorry for the delay but here is the shutdown/startup plan. The final revised O&M plan is being reviewed now and will be completed soon.

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Site Shutdown Plan
Penta Wood Products Site, Town of Daniels, Wisconsin
WA No.132-LRLR-05WE/Contract No. EP-S5-06-01

Introduction

This plan was created for the Penta Wood Superfund Site to establish the shutdown procedures for the remediation activities occurring at the site. Current remediation and treatment operations include extraction and treatment of groundwater, light nonaqueous phase liquid (LNAPL) recovery, and bioventing. The site remediation system was certified operational and functional on August 12, 2004, and is therefore scheduled to be transferred from the U.S. Environmental Protection Agency (USEPA) to the Wisconsin Department of Natural Resources (WDNR) on August 1, 2014. This plan was prepared using the most up-to-date information collected during the past decade of operations at the site; however, a complete shutdown of the system for an extended period has not been previously performed. It should be assumed that anyone undertaking a full shutdown should do so at their own risk and should expect that additional steps and resources may be required to address unforeseen issues with a complete long-term shutdown.

Background

Remedial Objectives

In September 1998, the Record of Decision was finalized specifying remedies to address contamination associated with soil and sediment, surface water, LNAPL, and groundwater. The following are the specific remedial action objectives:

- Reduce or eliminate the potential risk to human health and ecological receptors associated with exposure to pentachlorophenol (PCP) and fuel oil components in surface water and groundwater, and PCP/fuel oil components and metals in the soil and sediment.
- Reduce or control the source of contaminants.
- Meet the applicable or relevant and appropriate requirements, including reducing contaminant concentrations in the groundwater beneath the site to below the WDNR's Preventative Action Limits.

The remedial action for the contaminated soil was completed in 2000 and included the construction and consolidation of material in an onsite Corrective Action Management Unit. The remedial action to address LNAPL and contaminated groundwater is ongoing and includes the following:

- Extraction and treatment of the contaminated groundwater
- Monitored natural attenuation
- LNAPL recovery
- Bioventing

The current system configuration has been running continuously since 2004, except for limited downtime for routine maintenance and repairs. The biovent system, first started in September 2007, operates during the summer and is turned off for the winter.

The performance goals for the groundwater extraction and treatment system and LNAPL recovery are as follows:

- Remove LNAPL, to the extent practicable, to reduce a source of PCP to the groundwater.
- Lower the water table, to the extent practicable, to allow bioventing to promote natural degradation of the residual diesel fuel petroleum hydrocarbons and PCP in the LNAPL smear zone.
- Contain, collect, and treat the most concentrated portions (exceeding 1,000 micrograms per liter) of the PCP in the groundwater, and reduce concentrations to a level that allows natural attenuation to achieve the NR 140 standards in a reasonable period of time.
- Comply with discharge standards.

Shutdown Procedures

The following plan outlines the necessary steps to be taken prior to a generic shutdown for an undetermined amount of time at any time of year. This shutdown plan covers a complete full shutdown. Additionally, a short-term shutdown scenario has been developed for other shorter periodic shutdowns. The short-term shutdown procedure does not anticipate shutting down the heating, ventilation, and air-conditioning (HVAC) system during the winter, which would damage equipment. Only the long-term shut down has taken into account a winter shutdown. This plan references standard operating procedures (SOPs) that are included in the operations and maintenance (O&M) manual for the site.

Details for startup and additional details for system components are located in the O&M manual and associated SOPs.

The long-term shutdown procedure is meant as a mothball shutdown procedure. The procedure would be used in cases of shutdown for several months during the winter and summer (with no heat) or several years. The short-term shutdown procedure is meant for a shutdown of several days to a few weeks. The short-term procedure assumes the heat and electricity will be left on.

For immediate and very short-term shutdowns (that is, less than a week), follow the standard operating procedure in the O&M manual for shutting the system off.

Long-Term Shutdown Procedures

The following are the long-term shutdown procedures:

- Prior to shutting down, the additive chemicals (8,000-gallon caustic soda storage tank and 8,000-gallon ferric sulfate storage tank) should be used up to the greatest extent possible to minimize waste.
- Perform standard maintenance (add oil to equipment, etc.) prior to shutdown.
- The biovent system will be shut down (See SOP21).
- The coalescing oil-water separator will be turned onto auto and sprayed down, and will drain to the filtrate tank (see SOP05). Run the system with the equalization tank pump (P-11-2) on manual until the equalization tank (7,500 gallons, T-11) is empty.
- Run the system with the filtrate tank pump (P-20-3) on manual until the filtrate storage tank (4,200 gallons, T-20) is empty.
- Run the RDVF once the filtrate storage tank is empty (about 10 percent). Run the RDVF until the float storage tank (5,400 gallons, T-18) is empty (pumping air). During washdown of the RDVF, the washdown water will run into the filtrate storage tank, and the leftover sludge in the pan will be pumped to the float storage tank (see SOP16).
- Shut off the groundwater pumps (see SOP03 and the free product pumps).
- Using a submersible sump pump (capable of pushing 60 gpm), pump the water in the filtrate storage tank to the coagulant reaction tank (1,250 gallons, T-12), which should provide enough flow to continue operating the system and treating water.
- Once the filtrate tank is empty, pump the coagulant reaction tank water into the flocculant reaction tank (900 gallons, T-13) using a submersible sump pump (capable of pushing 60 gpm), which should provide enough flow to continue operating the system and treating water.
- Once the coagulant reaction tank is empty, pump the flocculant reaction tank water into the DAF using a submersible sump pump (capable of pushing 60 gpm), which should provide enough flow to continue operating the system and treating water.

Continue running the GAC feed pump (P-15-3) until the DAF and DAF pump tank (630 gallons, T-15) are drained (as much as they are able).

- The dissolved air floatation (DAF) system will need to be drained and cleaned, including the hopper. Run the skimmers manually to remove as much sludge as possible into the hopper. The hopper will be drained and fresh water will be sprayed in so the pump can be cleaned. Allow the pump to empty and the hopper to dry. Water left in the DAF can be pumped into the DAF pump tank using a submersible pump (630 gallons). The DAF pump tank can then be pumped through the granular activated carbon (GAC) vessels. Shut down the DAF system using the DAF panel (see SOP09). The activated carbon in the two 8,000-gallon GAC vessels and from the pre-filter GAC vessels will be emptied and will be disposed of as hazardous waste (currently being considered for de-listing). The lead, lag and prefilter vessels will be drained into the outdoor underground containment tank. The GAC vessels and associated laterals will be inspected (see SOP06 and SOP19).
- The outside underground containment tank (2,500 gallons, T-2)) will be pumped into the float storage tank.
- The plant drain sump (T-25) will be pumped into the float storage tank.
- The neutralization tank will be discharged to the infiltration basin.
- The sludge in the outdoor underground containment tank and the plant drain sump will need to be cleaned out and properly disposed of offsite.
- The liquid and material left in the float storage tank will be pumped into a frac tank and disposed of offsite.
- To drain the potable water line, the potable water pump will need to be disconnected from the pitless adapter in the well by a licensed well driller. The water will then drain from the lines back into the well. Once all of the water has drained, the pump can be reinstalled. All drains, safety showers, service water tanks, and copper pipe will need to be emptied.
- The effluent discharge line will empty itself because it is gravity fed into the infiltration basin.
- To drain the lines within the system, compressed air will need to be added into the lines to blow them out completely. If any low points in the lines are found where water could collect, a hole will need to be drilled into the lowest point of the line so the water can drain. This can be filled with a threaded plug later.
- To drain the groundwater and LNAPL conveyance lines, either the groundwater and LNAPL pumps can be removed from the wells or the flexible tubing lines for the LNAPL, and groundwater in the well vault will need to be disconnected so the water in the line can be drained to the system (typically the well vaults are at a higher elevation). For either option, the lines can also get disconnected at the manifold, and compressed air can be used to blow out each of the lines.
- The pumps in the system will also be blown out then the valves on either side of the pump will be closed to isolate the pumps from the system.
  - Equalization pump
  - Oil pump
  - Water pump
  - GAC feed pump
  - Filtrate pump
  - RDVF feed pump
  - Polymer makeup system
  - DAF float pump
- The peristaltic pumps will have their replaceable lines removed and disposed of.
  - Caustic pump
  - Ferric pump
  - Turbidity pump (the turbidity pump basin will also need to be emptied)
- The air compressor will be shut down and the air compressor tanks contain condensation which will need to be blown out.

- The desiccant in the air dryers will need to be removed.
- The laboratory equipment and supplies will need to be removed and stored in a conditioned space offsite.
- The pH probes in the tanks will need to be removed and stored in a conditioned space offsite.
- All hazardous waste generated from the remedial activities will be disposed of within 90 days of generation.
- Sensitive computers and programmable logic controllers need to be removed and stored in a conditioned space offsite.

Short-term Shutdown Procedure (Heaters and Electrical On)

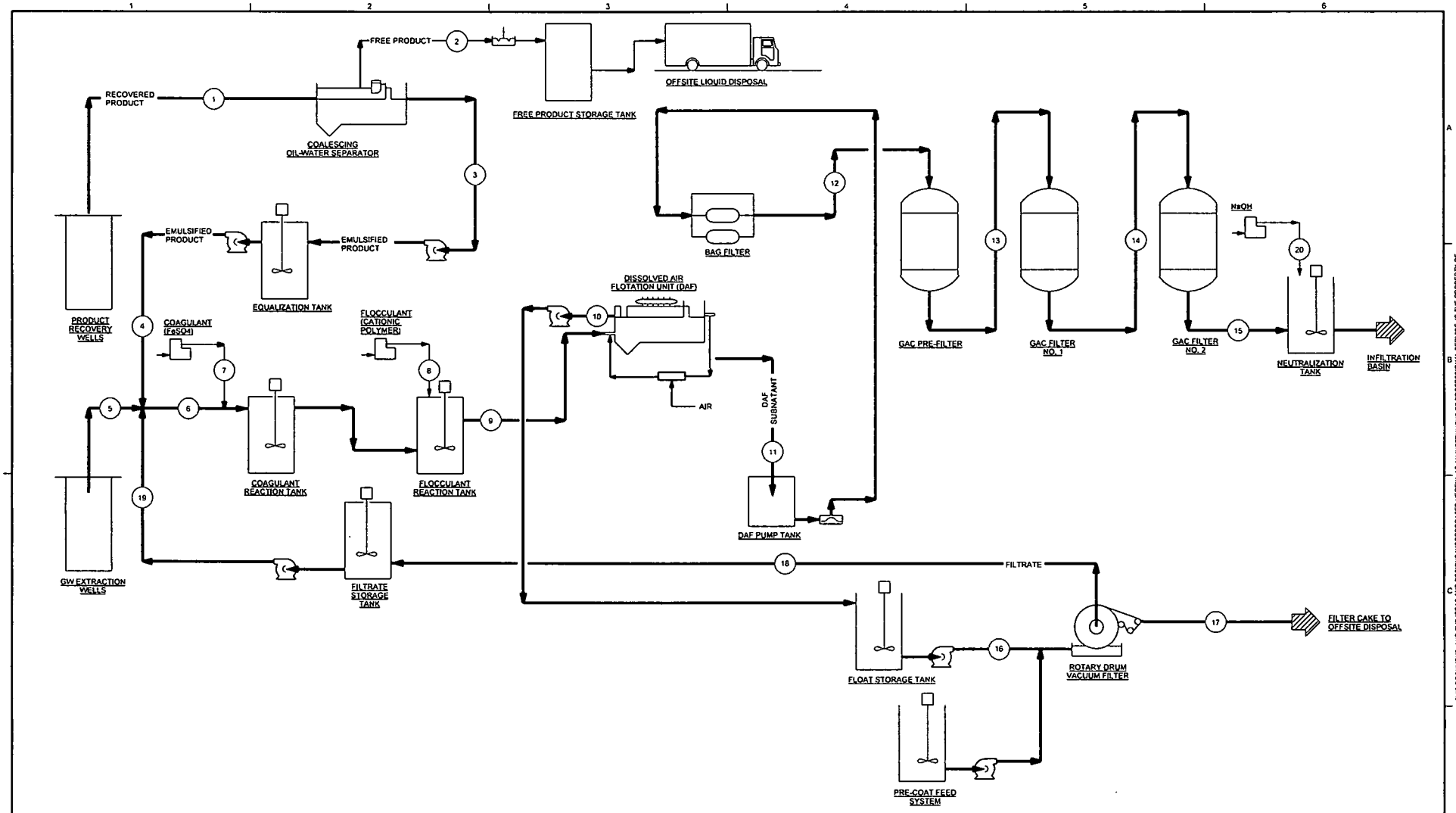
The following O&M activities should be completed for periodic shutdowns:

- Perform the following standard shutdown procedures:
  1. Unarm System by hitting the "Disarm/Re-Arm" button.
  2. Take notes of bag filter, clay filter (pre-filter), GAC #1, GAC #2, and system nephelometric turbidity unit.
  3. Process 2: STOP GAC Feed Pump (P-15-3).
  4. Process 1: STOP Groundwater Pumps.
  5. Process 1: STOP Equalization Tank Pump (P-11-2).
  6. Process 3: STOP Filtrate Pump (P-20-3).
  7. Process 2: STOP Caustic Pump (P-22).
  8. Process 1: STOP FeSO4 Pump (P-21).
  9. Process 1: STOP Free Product Pumps.
  10. Click through process screens 1 to 3 to shut off the remaining the pumps and mixers.
- The DAF system skimmer will go into auto clean mode after the pumps in the system are shut down to clean off the solids. DAF does not need to be completely drained. After the skimmer stops, the hopper should be sprayed down with water, and the float pump will need to be manually turned on from the DAF panel. The float pump can be turned off once the hopper is cleaned. Water will be sprayed in until the pipe running from the hopper to the float pump is completely full to keep seals from drying out.
- The float tank should be drained to approximately 35 percent full (by running the RDVF). The tank level will need to be high enough for the mixer to be effective.
- Underground storage tank will be drained.
- The air compressors will be shut down.
- The activated carbon in the three granular activated carbon vessels will be removed and the required inspection of the laterals in each vessel will be performed. New carbon will be filled during startup.
- Underground storage tank will be drained and the sludge will be pumped out and disposed of.
- The two propane tanks will be filled.
- The HVAC system will be inspected, and maintenance will be performed.
- All hazardous waste generated from the remedial activities will be disposed of within 90 days of generation.

The recommended temperature at the site thermostat is 55 degrees Fahrenheit.

Before leaving the site, the alarm on the autodialer will need to be set. The reason the alarm needs to be on is for power outages to trigger a call to the operator. If a power outage occurs while the operator is gone, the operator will receive a call from the autodialer. The operator will then need to return to the site to restart the tank mixers and polymer system mixer (otherwise, the waste in the tanks will solidify). (Note: The filtrate storage tank mixer should never be run.)

During the shutdown period, an operator will need to visit and inspect the site weekly to ensure that the heaters are still running and the fan belts are still in good condition. The weekly visit should also include an inspection of the outside of the plant for leaks and issues and an inspection of the inside of the plant for leaks and issues. The system alarm will need to be set to alarm if leaks are detected or the power goes out. The propane supplier will also still need to be on standby for refilling the propane tank.



DSGN K.McKENNA DR P.YOUNG CHK K.McKENNA APVD R.A.TOLO	NO. DATE REVISION BY APVD	VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CH2MHILL	BIOVENTING/GROUNDWATER TREATMENT FACILITY MODIFICATIONS PENTA WOOD PRODUCTS SITE LTRA ENGINEERING SUPPORT TOWN OF DANIELS, WISCONSIN	PACKAGE 2 GENERAL PROCESS FLOW DIAGRAM	SHEET 3 DWG G-3 DATE MARCH 2003 PROJ 159815

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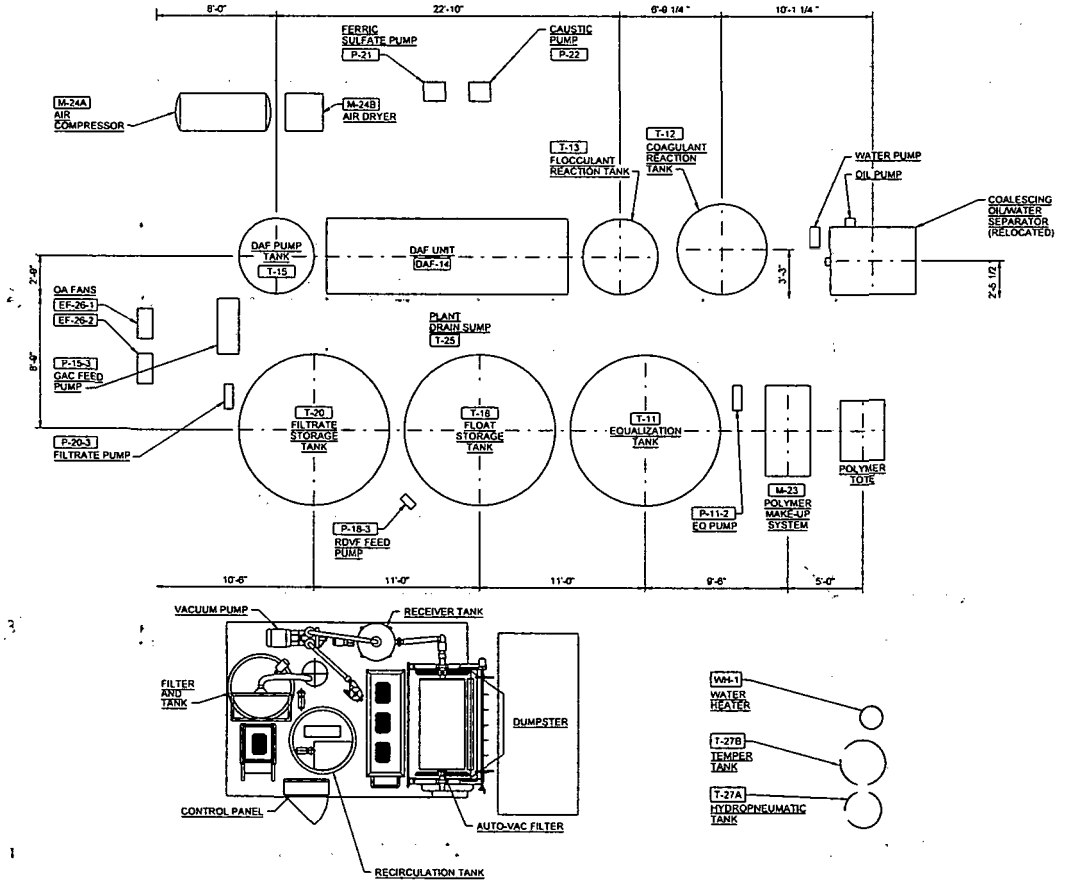

PLAN
1/4"=1'-0"

NOTE:
1. SLOPE ALL PD LINES APPROXIMATELY 1/8" PER FOOT TO SUMP.

DSGN K.McKENNA DR D.A.KIERZEK CHK R.A.YOLO APVD R.A.YOLO	NO.	DATE	REVISION	BY	APVD	VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.	CH2MHILL	BIOVENTING/GROUNDWATER TREATMENT FACILITY MODIFICATIONS PENTA WOOD PRODUCTS SITE LTRA ENGINEERING SUPPORT TOWN OF DANIELS, WISCONSIN	PACKAGE 2 MECHANICAL PRETREATMENT FACILITY PLANT DRAIN PLAN	SHEET 28 DWG M-3 DATE MARCH 2003 PROJ 159815

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