

PART V: STORAGE AND TREATMENT IN SURFACE IMPOUNDMENTS

The Permittee is allowed to store and treat hazardous waste in the Treatment Building following the requirements of 6 CCR 1007-3 Part 264 Subpart K and in the following manner:

V.A. UNIT DESCRIPTION

Treatment Building - The Treatment Building was constructed and shall be maintained as follows:

V.A.1. The Treatment Building is a metal fabricated building set on a spread footing foundation. The Building is contained within a double liner system described in Permit Condition V.C. The Treatment Building is located as shown in Figures 1 and 2 of Permit Attachment 1.

V.A.2. Hazardous waste treatment occurs in divided treatment mixing basins, designated A-1, A-2, A-3, A-4, D-1, D-2, and D-3 and two larger mixing basins designated Basins B and C. The treatment processes are described in Permit Condition V.D. The treatment mixing basins and the process equipment containing basins are constructed of reinforced concrete with a protective, sacrificial steel liner installed inside the basins. Basins A-1 through A-4, D-1, and D-2 have an approximate capacity of 150 yd³, Basin D-3 has an approximate capacity of 300 yd³, and Basins B and C have an approximate capacity of 600 yd³ each. The maximum treatment capacity of the unit is 2400 yd³ per day.

V.A.3. Hazardous waste storage and staging occurs in the western portion of the Treatment Building, designated Staging Area No.1. Wastes will be stored in containers and/or form boxes. Staging Area No. 1 is approximately 120 feet by 60 feet. The maximum capacity for storing and/or staging in Staging Area No. 1 is 600 yds³.

V.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

V.B.1.a. The following table lists the approved waste codes for treatment and/or storage in the Treatment Building:

| D Codes | F Codes | K Codes | P Codes | U Codes |
|---|---|--|--|--|
| D001- low TOC D002 - Corrosive characteristic D003 - Reactive sulfides D003 Other Reactives D003 - water reactives D003 Reactive Cyanides D004 - Arsenic D005 - Barium D006 - Cadmium D007 - Chromium D008 - Lead D009 - low Hg D009 - all ww D010 - Selenium D011 - Silver D012 thru D043 | F001 thru F004 F005 - Carbon disulfide, cyclohexanone, and/or methanol F006 thru F012 F019 F020 thru F023 F025 thru F028 F032 F034, F035 F037 thru F039 | K001 thru K011 K013 thru K024 K025 thru K027 - debris only K028 thru K038 K039 - debris only K040 - K043 K044 & K045 - deactivation only K046 K047 - deactivation only K048 thru K052 K060 thru K062 K069 - low lead K071 K073 K083 thru K088 K093 thru K105 K106 - low Hg K111 K115 - Nickel only K117 - K118 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176 thru K178 State Codes K901-meeting demilitarization standards K902 –meeting demilitarization standards. | P003 - ww only P004 P010 thru P013 P020 thru P022 P024 P029, P030 P036 P039 P047 - 4,6 dinitro-o-creosol P048 P050, P051 P056 - ww only P059, P060' P063 P065 - low Hg residues P065 - ww P071 P073, P074 P077 P082 P089 P092 - low Hg residues P092 - ww P094 P097 thru P099 P101 P103, P104 P106 P110 P113 - ww P114 P115 -ww P119 thru P121 P123 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205 State Codes P909-911-meeting demilitarization standards | U002, U003 U005,U009, U012 U018, U019 ,U022 U024, U025 U027 thru U032 U036, U037 U038 - ww, U039 U042 - ww U043 thru U045 U047, U048, U050 U052, U057 U060, U061, U063 U066 thru U072 U075 thru U084 U088 U093 - ww U101, U102 U105 thru U107 U108 - non ww U109 - ww U111, U112 U115 - ww U117, U118, U120, U121 U127 thru U129 U130, U131 U134 - ww U136 thru U142 U144 thru U146 U151 - low Hg U151 - ww U152, U154, U155 U157 thru U159 U161, U162, U165 U168 thru U170 U172, U174 U179 thru U181 U183 thru U185 U187, U188, U190 U192, U196 U203 thru U205 U207 thru U211 U214 - U217 - ww U220 U225 thru U228 U235, U239 U240 - 2,4D U243, U247, U271 U278 thru U280 U364, U367, U372 U373, U387, U389 U394, U395, U404, U 411 |

- V.B.1.b. For wastes codes which have specific treatment technologies specified in 6 CCR 1007-3 §268.40, (i.e. all wastes codes not included above), the Permit may treat such wastes for other physical (such as load bearing) or chemical parameters once the treatment technology standard has been met.
- V.B.2. The Permittee may treat those wastes which have been tested and/or determined to be acceptable for processing, according to the preacceptance waste evaluation process, in the treatment mixing basins, in the Treatment Building.
- V.B.3. Radioactive wastes, in compliance with the levels in Radioactive Materials License No. 1102-01, may be accepted at the Facility. These wastes must be managed in accordance with the conditions in Radioactive Materials License No. 1102-01, and any subsequent revisions, renewals, and/or modifications.
- V.B.4. Bulk polychlorinated biphenyls (“PCBs”) at concentrations \leq 50ppm or PCB remediation waste, at concentrations \geq 50 ppm, as authorized under the Toxic Substances Control Act 40 CFR Part 761.61(a)(5)(i)(B)(2)(iii) may be accepted.
- V.B.5. Wastes which are ignitable below 100°F will not be accepted for treatment.
- V.B.6. Wastes which have an average volatile organic (VO) concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw) will not be accepted for treatment. The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 §264.1083(a).

V.C. DESIGN REQUIREMENTS

- V.C.1. The liner system for the Treatment Building consists of (from the bottom to top) prepared subgrade, three feet of compacted clay, a 40-mil High Density Polyethylene (HDPE) geomembrane, a leachate collection/leak detection system, three feet of compacted clay, and an 80-mil geomembrane. The liner system is shown in Figures 9 through 11 of Permit Attachment 1.
- V.C.2. The leachate collection system consists of a geocomposite layer which drains to a sump. The leachate system is accessed by a HDPE riser pipe.
- V.C.3. In the area of the basins, the primary liner is covered by a minimum of 1.5 feet of clayey structural fill, which is overlain by 1.5 to 2.25 feet of concrete. The concrete is then overlain with a one inch steel plate.

V.C.4. An annulus monitoring system exists between the concrete and the steel plate in each basin. The annulus monitoring system slopes to a sump in one corner of each basin. The annulus monitoring systems are accessed by riser pipes.

V.C.5. The floors of the Treatment Building are sloped to provide segregated drainage to each of the mixing basins.

V.D. OPERATION REQUIREMENTS

V.D.1. The Treatment Building will be used for waste receiving, waste staging, storage of treated and untreated wastes, waste sizing, preparation, and mixing.

V.D.2. Staging Area No. 1 will be used for waste receiving, waste staging and accumulation, and addition of reagents to solidify liquids and improve waste handling.

V.D.3. Wastes will be transferred to the Treatment Basins directly from waste receiving trucks, from the Container Management Building A, from the Container Storage Area A or B, or from Staging Area No.1. All transfers shall be in accordance with the Waste Analysis Plan, Permit Attachment 2.

V.D.3.a. Waste delivery trucks will be directed to a specified Treatment Building door for unloading.

V.D.3.b. Treatment Building doors will only be opened to allow entry or exit of waste via truck and/or in the case of emergencies.

V.D.4. Management of waste into and out of the Treatment Building will be recorded in the Operating Record. The Operations Foreman, Radiation Safety Officer, or designated Operators, will confirm all movement of wastes into, within, and out of the Treatment Building on the Movement Request Form.

V.D.5. The Permittee shall separately, based on compatibility, pre-treat, treat, stabilize and/or solidify each waste or group of similar wastes which require additives or reagents to be added, in order to meet the Land Disposal Restrictions of 6 CCR 1007-3 Part 268.

V.D.6. Dilution of wastes to achieve Land Disposal Restriction standards is prohibited.

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- V.D.7. Wastes will be treated by stabilization, solidification, encapsulation, or chemical treatment. The type and quantity of reagents used will be predetermined by a treatment recipe. The type and quantity of reagents used will be recorded in the Operating Record.
- V.D.8. Treatment process will be performed through shredding or back-hoe mixing.
- V.D.9. Waste Shredding
- V.D.9.a. Wastes may be shredded through the shredder located adjacent to Basin D-2.
 - V.D.9.b. Containerized waste will be conveyed to the shredder from the floor staging area adjacent to the shredder.
 - V.D.9.c. The shredder will typically provide size reduction to 1" by 6" particles.
 - V.D.9.d. Shredded wastes will be contained in Basin D-2.
 - V.D.9.e. Shredded waste will be transferred to other basins for further treatment. Management of shredded waste will be administered and tracked with a Movement Request. Operations Foreman or designated Operators will confirm all activities on the Movement Request.
 - V.D.9.f. The shredder must be maintained according to the technical information and drawings contained in Attachment 1. Applicable operating procedures defining safe operating practices will be maintained at the Facility and updated as necessary.
- V.D.10. Back-hoe Mixing
- V.D.10.a. Reagents feed for Basins A1, A2, A3, and A4 will be conveyed by metering equipment or manually. Reagent feed for Basins D1, D2, and D3 is from storage silo or manual transfer.
 - V.D.10.b. The Permittee shall record, in the Operating Record, the amount (weight and/or volume) of reagent used in the treatment process. Resettable flow totalizers or other calibrated method can record the

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- volume of each reagent used for each batch. Controls allow varying reagent feed rates for each batch.
- V.D.10.c. The back-hoe is positioned adjacent to the treatment mixing basin and will mix and incorporate reagents into the waste. As the waste is being mixed, additional reagents may be added.
- V.D.10.d. The waste reagent mixture may be left in the mixing basin to cure or it may be out loaded to bulk containers (roll-offs or form boxes) and transferred to Staging Area No. 1.
- V.D.11. The Permittee shall maintain one foot of free board in the basins when managing liquid waste.
- V.D.12. The Permittee shall not allow waste to remain overnight in the Treatment Mixing Basin or process equipment if the wastes may produce ignitable, explosive, or toxic fumes, vapors or gases. Determination of probable fume or vapor concentrations which may accumulate in the Treatment Building from volatile or slightly volatile wastes must be based on calculations or laboratory data assuming loss of ventilation for one hour.
- V.D.13. After the treated waste has cured and been evaluated in accordance with the Waste Analysis Plan, Permit Attachment 2, the waste is then transferred to the secure disposal cells. The management of treated waste will be administered and tracked with a Waste Tracking Form or Work Order. Operations Foreman or designated Operators will confirm all activities on the Waste Tracking Form or Work Order.
- V.D.14. The leak detection system shall be operated and maintained to minimize clogging during the active life of the Treatment Building. [6 CCR 1007-3 §264.221(c)(2)(iv)]
- V.D.14.a. The leak detection system shall be operated with pumps of sufficient size to collect and remove liquid from the sump and prevent liquids from backing up into the drainage layer. [6 CCR 1007-3 §264.221(c)(2)(v)]
- V.D.14.b. The Permittee shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner. Liquid accumulation shall be minimized by removal of liquid from the

sump when the depth of liquid in the sump exceeds 0.67 feet, as determined by inspections required by the Inspection Plan, Permit Attachment 3.

V.D.15. Leakage Action Rate and Response Actions for Treatment Building Impoundments

- V.D.15.a. The action leakage rate, calculated in accordance with 6 CCR 1007-3 §264.222, for the Treatment Building Impoundment is 500 gallons per acre per day.
- V.D.15.b. To determine if the action leakage rate has been exceeded, the Permittee must convert the monthly flow rate from the monitoring data obtained to an average daily flow rate (gallons per acre per day) for the sump.
- V.D.15.c. If the action leakage rate has been exceeded, if liquid containing wastes, leachate, or any hazardous waste constituent is found in the Treatment Building leak detection system, the following response actions must be taken:
- V.D.15.c.i) Notify the Department in writing of the exceedance within 7 days of the determination;
 - V.D.15.c.ii) Submit a preliminary written assessment to the Department within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size and cause of any leaks, and short-term actions taken and planned;
 - V.D.15.c.iii) Determine, to the extent practicable, the location, size, and cause of any leak;
 - V.D.15.c.iv) (1) Determine whether waste processing in the Treatment Building should cease or be curtailed, (2) determine whether any waste should be removed from the unit for inspection, repairs, or controls, (3) determine whether or not the Treatment Building should be removed from service, and (4) determine whether the Treatment Building should be closed;

- V.D.15.c.v.) Determine any other short-term and longer-term actions to be taken to mitigate or stop any liquids; and
- V.D.15.c.vi) Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Department the results of the analyses specified in V.D.15.d.i), the results of actions taken, and actions planned. Monthly, thereafter, as long as the flow rate in the leak detection systems exceeds the action leakage rate, the Permittee must submit to the Department a report summarizing the results of any remedial actions taken and actions planned.
- V.D.15.d. To make the leak and/or remediation determinations in V.D.15.c.iii), iv), and v), the Permittee must
- V.D.15.d.i) Assess the source of liquids and amounts of liquid by source:
- Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and
 - Assess the seriousness of any leaks in terms of potential for escaping into the environment; or
- V.D.15.d.ii) Document why such assessments are not needed.
- V.D.15.e. If the Treatment Building has been removed from service in accordance with Permit Condition V.D.15.c.iv), it may not be restored to service unless the portion of the impoundment which was failing or leaking is repaired and the impoundment's structural integrity is recertified in accordance with 6 CCR 1007-3 §264.226(c). [6 CCR 1007-3 §264.227(d)]
- V.D.15.f. If the Treatment Building has been removed from service in accordance with V.D.16.c.iv), and is not being repaired, it must be closed in accordance with the Closure Plan, Permit Attachment 6 and with the provision of 6 CCR 1007-3 §264.228. Repairs or

closure must commence within 30 days of the removal from service. [6 CCR 1007-3 §264.227(e)]

V.E. MONITORING AND INSPECTION

V.E.1. While the Treatment Building is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

- Deterioration, malfunction, or improper function of operating systems
- Severe erosion or other signs of deterioration in containment devices

V.E.2. After any extended period of time (at least six months) during which the impoundment is not in service, the Permittee must obtain a certification from a qualified Registered Professional Engineer that the impoundment has structural integrity. The certification must establish, in particular, that the impoundment will withstand the stress of the pressure exerted by the types and amounts of waste placed in the impoundment and will not fail. [6 CCR 1007-3 §264.226(c)]

V.E.3. The Permittee must record the amount of liquids removed from the leak detection system sump at least once each week during the active life and closure period. [6 CCR 1007-3 §264.226(d)]

V.E.4. The Permittee shall inspect the annulus between the steel liners and concrete of each basin following the procedures specified in the Inspection Plan, Permit Attachment 3.

V.F. CONTINGENCY PLAN IMPLEMENTATION

V.F.1. The Permittee shall implement the Contingency Plan when the resampling event described in Part VII.D.3.b. of this Permit confirms, for the liquids from the Treatment Building Leak Detections System, a significant increase for any of the detection monitoring parameters listed in Table VII-3.

V.F.2. The Permittee shall implement the Contingency Plan whenever unexpected or uncontrolled reactions occur in a Treatment Mixing Basin which produce toxic or ignitable mists, fumes, dust or gases, extreme heat or pressure, violent reactions, fire, or explosions.

V.G. CLOSURE

At closure, the Permittee must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless 6 CCR 1007-3 §261.3(d) applies. All closure activities must be performed in accordance with the requirements of the Closure Plan, Permit Attachment 6.

V.H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

V.H.1. Ignitable or reactive waste will not be placed in any treatment basin, unless the waste and the basin satisfy the requirements of 6 CCR 1007-3 Part 268 and

- V.H.1.a. The waste is treated, rendered or mixed immediately after placement in the basin so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 6 CCR 1007-3 §261.21 or §261.23 and 6 CCR 1007-3 §264.17(b) is complied with; or
- V.H.1.b. The waste is managed in such a way, following the procedures specified in Permit Conditions V.H.2 and V.H.3., that it is protected from any material or conditions which may cause it to ignite or react; or
- V.H.1.c. The basin is used solely for emergencies. [6 CCR 1007-3 §264.229]

V.H.2. Special handling procedures for managing reactive wastes will include:

- Treatment of the material will be under the direct supervision of either the Facility General Manager, or shift Foreman
- Specific Personnel Protective Equipment shall be specified by the Facility General Manager
- Specific monitoring for the release of potentially hazardous gases will be prescribed by the Facility Manager and conducted by operations personnel and

- Monitoring of pH will be conducted during treatment as specified in the PDR form

V.H.3. Special handling procedures for materials which are ignitable between 100°F and 140°F will include the following:

- “No Smoking” signs will be posted in the Treatment Building
- Only 12,000 gallons or 60 yd³ of ignitable materials will be processed in a mixing basin at one time
- Prior to unloading, the drum or truck will be grounded to prevent build up of static electricity
- If combustible wastes are co-mingled, the co-mingled waste will be pre-tested to see if the resulting mixture still exhibits characteristics of ignitability between 100°F and 140°F
- If the treated material continues to exhibit ignitability then the above procedures, as applicable, will be followed in loading the material for transport to the secure cells
- Containers will be bonded when transferring waste between containers.
- Non-sparking tools shall be used when handling ignitable wastes

V.H.4. The Permittee shall document compliance with this section for all potentially ignitable or reactive wastes treated in the Treatment Building by providing written references in the Facility Operating Record citing specific chemical principles, test data, and/or calculations relevant to the treatment process.

V.I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

V.I.1. Incompatible wastes, or incompatible wastes and materials, (see Appendix I of the Waste Analysis Plan for examples) must not be placed in the same basin unless 6 CCR 1007-3 §264.17(b) is complied with.

V.I.2. The Movement Request will be utilized to indicate the proper treatment mixing basin and/or staging area for unloading each waste.

V.I.3. The Permittee shall document compliance with this section for all potentially incompatible wastes treated in the Treatment Building by providing written references in the Facility Operating Record citing specific chemical principles, test data, and/or calculations relevant to the treatment process.

V.J. SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES F020, F021, F022, F023, F026 AND F027

V.J.1. The Permittee may treat wastes identified by the waste codes F020 through F023, F026 and F027 which have been incinerated and meet the land disposal restriction requirements of 6 CCR 1007-3 §268, only to achieve the land disposal restrictions for characteristic wastes, constituents other than dioxins or load bearing requirements.

V.J.2. Special handling requirements for handling hazardous wastes F020 through F023, F026 and F027 will follow the Dioxin Management Plan, Permit Attachment 2, Waste Analysis Plan, Appendix I and as specified below:

V.J.2.a. Untarping of bulk loads and/or opening of containers will occur only at the time of unloading or sampling. No load will be untarped or opened prior to positioning the truck and/or container inside the Treatment Building.

V.J.2.b. Bulk loads will be checked prior to commencing unloading to determine if the addition of water is necessary to minimize dust generation. Water will be applied to the dry waste during unloading inside the Treatment Building to minimize dust.