



Anthony Leverock <leverock.anthony@azdeq.gov>

Substantive Review Comments 1 - Part A, Permit Fee, Character Background Reference (CBR), and Corrective Action

Anthony Leverock <leverock.anthony@azdeq.gov>

Mon, Jan 10, 2022 at 3:38 PM

To: Charles Templer <chuck@sydcol.com>

Cc: "James G. Peck" <james@jgpcon.com>, Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

Chuck and James -

In transmitting our comments on the permit application I intend to follow the process we used in the previous permit application, and send via email our comments on each of the modules for the permit application as they are completed. The email will include a due date for a response.

You are reminded that meeting the due dates is important in order to ensure that ADEQ completes its review in a timely manner.

Permit Fee

The initial permit fee has been paid. Charges for the review of the permit application and additional costs such as the public notice costs will be invoiced on a monthly basis.

Part A

1. Provide a table of the ADWR registration numbers and ownership for the ten wells shown on Figure 2 - "Surrounding Topography", and attached to the Part A.
2. There are two figures identified as "Figure 2". For the second one, specifically, Figure 2 - "Site Plan" that is attached to the Part A, there is a dot on the figure, located at the southwest corner of 13th and Engler Avenue, it is shown to the left of the "Entering Water Line". Clarify what this dot is intended to show. It would help to include the meaning of that dot in the Legend. If it is a typo, or remove it.
3. The caption for the third photograph attached to the Part A, states: "Photo 3: Showing concrete pad to serve as HWMU4. Facing northeast." We assume this is referring to HWMU3, as there will be no HWMU4. Correct the caption or clarify.

Character Background Reference (CBR) Forms

The CBR form for the applicant, A.A. Sydcol, LLC, was submitted. It indicates that there will be four key employees (Templer, Rmitio, Drewek, and Hayden). CBR forms for these four individuals were also submitted. here are no further comments.

Corrective Action

Due to the change to the application, the RCRA Facility Assessment completed by ADEQ in 2020 has been updated. It is attached.

1. The 2020 RFA identified six solid waste management units at the facility, and that has not been changed in the 2021 permit application. The revised RFA has updated the description of the SWMUs and the HWMUs. It appears that the future HWMU dimensions have changed. Verify that the RFA has that correct. Also, Sections 5.4 and 5.5 of the RFA state that the future HWMUs will have two sumps each to store precipitation and collect spills. I was not able to find information in the current application concerning sumps. Confirm in your response regarding the deletion of the sumps.

The remainder of the RFA has remained essentially the same, except some typos have been fixed, minor edits have been made, and two figures have been added at the end of the report, including a table of the hazardous wastes to be managed, and a new facility diagram, taken from the 2021 permit application.

2. The current application states that there are no additional SWMUs at the facility. As this is an important component to the application, In your response to this email, confirm if there are no new SWMUs to report to ADEQ.

Respond to this email with the requested information by January 25, 2022

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



azdeq.gov

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A.A.Sydcol AZR 000 520 304; RFA Report Rev 01-10-22.pdf
1762K



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To:

Mr. Anthony Leverock
Waste Programs Division,
Hazardous Waste Unit
1110 W. Washington Street
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leverock.anthony@azdeq.gov
602-771-4160

Project name:

Assessment of Stormwater Controls for
ADEQ

Project ref:

AA Sydcol Hazardous Waste TSDF
Permit

Date:

April 23, 2020

SUBJECT: Task 2 - Assessment of Stormwater Controls for the Arizona Department of Environmental Quality's (ADEQ) Waste Programs Division, Hazardous Waste Permitting and Support Unit

Dear Mr. Anthony Leverock,

AECOM Technical Services, Inc. (AECOM) is assisting the Arizona Department of Environmental Quality's (ADEQ) Waste Programs Division, Hazardous Waste Permitting and Support Unit with a technical review of AA Sydcol, LLC's hazardous waste permit application for the storage of hazardous waste containers. AECOM has completed an assessment of both the fire safety controls (Task 1) and the stormwater controls (Task 2) in the hazardous waste storage area. This Technical Memorandum provides a summary of findings from Task 2 of the study, which involved an evaluation of the proposed storage area plans to determine the adequacy of the containment systems at container storage units HMU2, HMU3, and HMU4, and to evaluate that storm water is not likely to cause the washout of hazardous waste or hazardous waste constituents.

1. EXPLANATION OF REASONING

In order to assess the adequacy of the proposed stormwater controls in AA Sycol, LLC's permit application AECOM analyzed the proposed hazardous waste management unit dimensions to calculate their gross containment volumes and compared those values to a minimum required volume based on the applicable hazardous waste storage requirements outlined under 40 CFR § 264.31, 264.32, and 264.175. AA Sydcol has already provided volume estimates within each unit as Attachment D of the permit application, however in order to evaluate the accuracy and effectiveness of these estimates, AECOM has provided two tables of calculations. Table 1 is a comparison of the required containment volumes to the proposed volumes and Table 2 is an explanation of the reasoning behind the displacement values used in Table 1. A more detailed explanation of the information presented in these tables is provided below.

Table 1 shows the gross volume calculations based on the presented containment dimensions for each unit. The maximum storage volumes provided in section 4.2 Containment System Capacity from Attachment D of the permit application are used to derive total displacement volumes and subsequent net containment volumes as well. Those maximum storage volumes are also used to estimate 10% of the total volume of waste stored in the unit pursuant to 40 CFR § 264.175(a)(3). This value is combined with the volume estimate of a 25-year, 24-hour rain event to satisfy the excess capacity for run-on requirement under 40 CFR § 264.175(a)(4). The total displacement volume calculated in Table 2 is added to this combined value to estimate the total required containment value. The current gross containment value must be larger than the calculated required containment in order to qualify as adequate in preventing the washout of hazardous waste or hazardous waste constituents.

Table 2 shows the process through which the displacement volumes were calculated. The “Drum Displacement” section shows the estimated displacement volume of a standard 55-gallon drum sitting in six inches of liquid (based on the height of the containment). Section 4.2 “Containment System Capacity” of Attachment D in the permit application also provides information about whether drums and totes will be stored on pallets or directly on the floor of each containment. Based on this information, it is assumed that HWMU2 and HWMU3 will be storing the drums and totes on pallets that elevate the containers at least six inches above the floor. The “Pallet Dimensions” section provides estimates for the displacement volume of a typical wooden pallet and a derived formula for calculating total displacement based on the maximum number of storage containers. This formula is used in the “Required Containment” section of Table 1 for HWMU2 and HWMU3 to calculate the total displacement volume. The permit application provides no direct statement that containers stored in HWMU4 will be placed on pallets, therefore the drum displacement value is used to calculate the total displacement volume in that unit.

As shown in Table 1, the proposed containment volumes are all approximately twice the required minimum values. The sumps in HWMU2 and HWMU3 were not included in these calculations but can be discounted as the additional volume they provide would be negligible in this context. Run-on and run-off to the containment areas was also considered in this analysis. The site is largely sloped from South to North and run-on from the South and East will be contained by the street drainage systems along the facility boundaries. According to the Site Plan (Figure 2) in Attachment D, the site is sloped so that stormwater drains away from the containments and along the East and West sides toward the Northern end of the facility. Even during a 25-year, 24-hour storm, the proposed six-inch berms around the containment areas would prevent run-on from washing over into the containment. To ensure these conditions are not changed, during construction activities, the site must be graded to prevent run-off from entering the containment areas.

2. CONCLUSIONS

Based on the results of this technical review, AECOM concludes that AA Sydcoll, LLC has provided plans for containment areas that both meet and significantly exceed the required minimum secondary containment volumes for hazardous waste storage areas HWMU2, HWMU3, and HWMU4. Tables 1 and 2 demonstrate that the proposed containment volumes are all approximately twice the value required to prevent the discharge of hazardous waste or hazardous waste constituents pursuant to 40 CFR § 264.31, 264.32, and 264.175.

ATTACHMENTS

Table 1 – Containment Volume – Calculation

Table 2 – Container Displacement Volume Calculation

Table 1
Containment Volume - Calculation
AA Sydcol, LLC - HWMU2, HWMU3, and HWMU4

| Current Containment Specs | HWMU2 | HWMU3 | HWMU4 |
|--|----------|----------|---------|
| Width (side that follows slope direction) (in) | 900 | 1176 | 600 |
| Length (in) | 1032 | 1008 | 2400 |
| Height (in) | 6 | 6 | 6 |
| Gross Containment Volume (Cubic In) | 5572800 | 7112448 | 8640000 |
| Gross Containment Volume (Gal) | 24125 | 30790 | 37403 |
| Maximum Storage (Drums) | 800 | 980 | 1250 |
| Displacement Volume per drum (Gal) | Pallets* | Pallets* | 10.78 |
| Total Displacement Volume (Gal) | 2280 | 2793 | 13475 |
| Net Containment Volume (Gal) | 21845 | 27997 | 23928 |

*See Displacement reasoning for pallet displacement calculation

| Required Containment Specs | HWMU2 | HWMU3 | HWMU4 |
|---------------------------------|---------|---------|---------|
| Maximum Storage (Gal) | 44000 | 53900 | 68750 |
| 25-year, 24-hr storm (in) | 3 | 3 | 3 |
| Required Containment (cubic in) | 2793080 | 3564407 | 4340350 |
| Required Containment (Gal) | 12091 | 15430 | 18789 |
| Current Containment (Gal) | 24125 | 30790 | 37403 |

All three units will have approximately twice the required containment based on these calculation:

Table 2
 Container Displacement Volume Calculation
 AA Sydccl, LLC - HMU2, HMU3, and HMU4

| | |
|--------------------|------|
| Drum Displacement* | |
| Height** (in) | 6 |
| Radius (in) | 11.5 |
| Volume (cubic in) | 2492 |
| Volume (Gal) | 10.8 |

*Based on ANSI standard drum's outside dimensions

**Height of secondary containment / maximum water level in containment

Each drum would be displacing approximately 10.8 Gal of the containment volume

Units 2 and 3 are planning on setting the containers on 6" pallets, which would significantly reduce displacement.

| | |
|-----------------------------|-------|
| Pallet Dimensions* | |
| Length (in) | 48 |
| Width (in) | 40 |
| Height (in) | 6 |
| Gross Volume (cubic in) | 11520 |
| Negative space** (cubic in) | 8880 |
| Net volume (cubic in) | 2640 |
| Net volume (Gallons) | 11.4 |

*The most common standard pallets are 48"x40"x6.5"

| | |
|------------------------------|------|
| **Negative space calculation | |
| Length | 48 |
| Width (pallet width - 3in) | 37 |
| Height (pallet height - 1in) | 5 |
| Negative Space (cubic in) | 8880 |

Each pallet holds approx. 4 drums / 1 tote and displaces 11.4 gallons

Convert from drum count to pallets: (drums/4)*11.4

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Project name:
Assessment of Fire Safety Controls for ADEQ

Project ref:
AA Sydcol, LLC Hazardous Waste TSDf Permit

From: Joseph M Soscia

Date:
April 30, 2020

To:

Mr. Anthony Leverock
Waste Programs Division, Hazardous Waste Unit
1110 W. Washington Street
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leverock.anthony@azdeq.gov
602-771-4160

CC: Katherine Nicholas, AECOM

SUBJECT: Assessment of Fire Safety Controls for the Arizona Department of Environmental (ADEQ) Quality's Waste Programs Division, Hazardous Waste Permitting and Support Unit

Dear Mr. Leverock:

AECOM Technical Services, Inc. (AECOM) has performed a technical review on behalf of the Arizona Department of Environmental Quality's (ADEQ) Waste Programs Division, Hazardous Waste Permitting and Support Unit. The technical review includes an assessment of the fire suppression system identified as Task 1 in the proposal for AA Sydcol, LLC, later referred to as the Owner, hazardous waste permit application for storage of hazardous waste in containers in accordance with 40 Code of Federal Regulations (CFR) 264.31 and 40 CFR 264.32.

1. BACKGROUND

The Owner at 2264 13th Street, Yuma AZ is planning to accept a variety of hazardous and non-hazardous wastes, and consolidate, bulk, repackage, and store the wastes for shipment to approved off-site reuse, treatment, and/or disposal facilities, fuel blenders or wastewater treatment plants. These activities are subject to regulation under RCRA, 40 CFR parts 239 through 282 and require a hazardous waste permit. The RCRA hazardous waste management program is administered in Arizona by the ADEQ Arizona under delegation from the EPA. Specific parts of RCRA applicable to the activities to be conducted at the Facility include the following:

- Part 243 Guidelines for the Storage and Collection of Residential, Commercial, And Institutional Solid Waste
- Part 261 Identification and Listing of Hazardous Waste
- Part 262 Standards Applicable to Generators of Hazardous Waste
- Part 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, And Disposal Facilities
- Part 265 Interim Status Standards for Owners And Operators Of Hazardous Waste Treatment, Storage, And Disposal Facilities
- Part 268 Land Disposal Restrictions
- Part 273 Standards for Universal Waste Management
- Part 279 Standards for The Management Of Used Oil

Typically, wastes will be transported to the Facility in tankers and/or containers (e.g. 55-gallon drums, totes) and will be liquid, semisolid, and/or solid in nature. Wastes will be received directly from generators or through third-party waste brokers under contract with hazardous and non-hazardous waste generators. An owner site plan, warehouse floor plan and photographs are provided in Att. 1, 2 and 3 respectively.

2. ASSESSMENT OF FIRE SAFETY CONTROLS - TASK 1

AECOM has reviewed the permit application to determine whether the fire controls provided by the facility at 2264 East 13th Street in Yuma County, Arizona are adequate to meet Yuma County codes and comply with federal regulations. A teleconference with ADEQ was held on April 9th, 2020 to address permit requirements and obtain supplemental hazmat storage information. The original building and fire code analysis for the building was not available. A review of regulatory requirements and applicable Yuma County codes were identified.

Title 40 CFR § 264.31 states the following:

40 CFR § 264.31 Design and operation of facility.

- *Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment.*

The Yuma County Comprehensive Building Safety Codes (YCBC) include the following as it pertains to 40 CFR § 264.31:

- *2018 International Building Code as amended by the City of Yuma (2018 International Fire Code as referenced.)*
- *2018 International Existing Building Code as amended by the City of Yuma*
- *2014 National Electric Code as amended by the City of Yuma*
- *2006 International Code Council Electric Code, Administrative Provisions as amended by the City of Yuma*
- *(General Design Criteria provisions: Seismic Design Category; Varies per Table 1613.3.1(1), B thru D-0, Verify by accessing the United States Geological Survey (USGS) website using longitude and latitude for the project location Basic design wind speed for Category II structure: IBC 100mph/ IRC 115mph. Wind Exposure; Category C, Snow Load-Frost Depth; Not Applicable)*

For compliance with 40 CFR § 264.31, AECOM recommends the owner perform a building, fire and hazmat code analysis in accordance with Yuma County for indoor and outdoor hazmat storage areas. This would directly mitigate the potential of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. AECOM's review is primarily focused on flammable and combustible liquids, although limits are even more restrictive for other hazmats posing a health hazard such as highly toxic materials i.e. 1 gallon maximum, which the Owner is also responsible to comply with.

AECOM's preliminary review identifies the existing indoor facility is permitted as a processing plant and office storing non-hazardous materials in 2017 per the YCBC. The building was designed for Use Group Classifications of Factory Group F1 and Business Group B mixed-use separated occupancy of Type II-B non-combustible construction. The F1 Group is assumed to pertain to the open warehouse in the main building identified as Hazardous Waste Management Unit 1 (HWMU1). To maintain the F1 Group classification in that area, it is required to remain below the maximum quantity of hazardous materials identified by the 2018 International Building Code as amended by the City of Yuma. The maximum quantity of hazardous materials is further restrictive for transfer of liquids as described in the ADEQ permit application Att. D, Section 3.3.

Otherwise the F1 Group classification will change to a single or multiple High-Hazard Group H, including H-2 and H-3 for flammable and combustible liquids and H-4 for corrosive, toxic and highly toxic materials. The same approach applies to outdoor Group S Storage. A general layout of storage, a list of hazardous materials classified under RCRA, containment capacity diagrams and maximum drum storage by hazmat class from the ADEQ permit application are provided in Att. 3, 4, 5 and 6 respectively.

According to list of hazardous materials, it appears that some hazardous waste may fall into the unstable and reactive category where an explosion may occur. The YCBC requires these materials to be stored in a detached building. Maximum quantity of hazmat would be required by the owner to determine applicable fire protection measures and building separation.

Section 4.2 of Attachment D in Part B of the permit application describes the general arrangement for HWMU1, HWMU2, HWMU3, and HWMU4. The estimated drum storage capacity of each HWMU is 525, 800, 980, and 1,250 respectively. Per Section 4.2, the maximum drum capacity is 525 drums or 28875 gallons. Table 1 below estimates the number of drums anticipated.

Table 1

HWMU1 ESTIMATED NUMBER OF DRUMS

| HWMU1 Total (gal.) | Hazmat Percent Flammable/Combustible (%) | Total Volume (gal.) |
|--------------------|--|---------------------|
| 28,875 | 43.77 Ignitables | 12,639 |
| | 7.29 Organic waste | 2,105 |
| | 19.84 Volatile organics | 5,729 |
| Totals: | | 20,473 |
| | | 372 Drums |

The maximum quantity of flammable liquids is 480 gallons (8-55 gal. drums) if stored in listed cabinets in a fully sprinkler building to maintain the existing Use Group classification. Therefore, the quantity of 372 drums exceeds the maximum allowable quantity and the storage area would be required to change occupancy to Group H-2. Additional fire protection measures that would be required include the following:

- a. Fire separation between Group B and Group H requires a two (2) hour rated fire barrier,
- b. Fire separation between H2 Group and H3/H4 requires a one (1) hour rated fire barrier; this may be achieved if all combustible and flammable liquids are contained in one (1) hour fire rated non-occupancy containment buildings.
- c. Electrical Hazardous Locations and/or proper exhaust ventilation,
- d. Seismic requirements will need to be evaluated/enhanced for High-Hazard Group H,
- e. Not less than one *approved* portable fire extinguisher having a rating of not less than 20-B shall be located not less than 10 feet or more than 50 feet from any Class I or II liquid storage area,
- f. Not less than one portable fire extinguisher having a rating of not less than 20-B shall be located outside of, but not more than 10 feet from, the door opening into a liquid storage room.
- g. Class D fire extinguishers are required for occupancies involving combustible metals.
- h. Water reactive hazmats are recommend to be stored in one (1) hour fire rated non-occupancy containment buildings to be protected from fire sprinkler discharge.
- i. Lithium ion batteries are recommended to be stored in one (1) hour rated non-occupancy containment buildings to be protected from fire sprinkler discharge.

Title 40 CFR § 264.32 states the following:

CFR § 264.32 Required equipment.

- *All facilities must be equipped with the following, unless it can be demonstrated to the Regional Administrator that none of the hazards posed by waste handled at the facility could require a particular kind of equipment specified below:*
- *(d) Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems.*

According to the American Sprinkler System Co., Inc letter dated April 21, 2016, (Att. 6) the automatic fire sprinkler system was designed for the protection of Commodity Storage Group 1 to 3 to a maximum height of 12 ft. and Group A plastics totes stacked to 8 ft. The sprinkler system design criteria is Extra Hazard Group 1 with a density of .3/2000 gpm/ft², with an outside hose stream demand of 500 gpm. It is noted that 2000 sq.ft. area does not comply with NFPA 13 for Extra Hazard Group 1 which requires a minimum of 2500 sq.ft. Using the 2000 sq.ft., the sprinkler demand resulted in 1,141 gpm @ 32 psi. The fire pump is rated for 750 gpm at 60 psi.

The existing fire water tank size is based on a 90-minute duration totaling 102,690 gallons while the useable tank volume is 112,604-gallons. It is unknown if the fire alarm system is connected to a central station which would require a 120-minute duration. Actual as-built hydraulic calculations would be required to confirm these results.

AECOM's review determined that based quantity anticipated for combustible and flammable liquids in the HWMU1 Warehouse, the option of using non-occupancy containment buildings presented in the application in ADEQ Att. D is acceptable with an

integral fire suppression system built into the storage cabinet. This would present the greatest storage capacity of drums and/or IBCs, although this quantity would still be limited by the area of the warehouse and the limitations of access aisles. The hazmat type and quantity in the containment buildings would be limited to the listing or FM approval.

The containment buildings need to be separated from each other by not less than 4-foot aisles. Aisles shall be provided so that all containers are 20 feet or less from an aisle. Main aisles shall be not less than 8 feet wide. Additional aisles are required for access to doors, required windows and ventilation openings, mechanical equipment and switches. Such aisles shall be not less than 3 feet in width, unless greater widths are required for separation of piles or racks, in which case the greater width shall be provided.

This option requires the ceiling automatic sprinkler system to be redesigned for Extra Hazard Group 2 based on NFPA 13 to accommodate transfer of liquids. This requires a minimum sprinkler density of .4/2500 gpm/ft² or approximately 1250 gpm flow for 90 minutes (if connected to a central station) and an estimated fire pump size of 1250 gpm. This would result in a minimum useable fire water tank size of 112,500 gallons. Therefore, based on the existing sprinkler system information provided, the sprinkler system and fire pump would not be adequate to accommodate the hazardous material storage. It appears the fire water tank may have sufficient capacity. These determinations are recommended to be confirmed with new fire sprinkler plans and hydraulic calculations. With further analysis of the as-built sprinkler drawings, it may be possible to maintain portions of the existing piping depending on the size of the new fire pump.

Other options included designing a liquid storage room or liquid warehouse which would have to comply with the requirements of Table 2 and Table 3. These options were not further evaluated due to the limitation of hazmat quantity. This would also lead to the replacement of the existing automatic sprinkler system and expansion of the fire water storage tank and fire pumping capacity.

Other recommendations related to fire protection systems include the following:

- j. An additional fire hydrant is required along Engler Avenue along the north east corner of the site.
- k. A fire hydrant location respective to a sprinkler system fire department connection requires approval. The hose connection from the tank may serve this purpose if it can accommodate the sprinkler system flow plus hose stream. This would increase the required capacity of the fire water tank.
- l. Secondary containment for indoor storage areas shall be designed to contain a spill from the largest vessel plus the design flow volume of the fire protection water from the sprinkler system; drainage remote from the building may be omitted with approval with an automatic foam system. This would not be required for drum storage.
- m. Reliable electric power for the fire pump in accordance with Article 695 of NFPA 70 is recommended to be confirmed.
- n. The fire pump is required to be separated by a distance of 50 ft from all HWMUs or fire barriers walls are required.
- o. The fire pump is required to be protected from environmental elements including rain and excessive heat.

Table 2
STORAGE ARRANGEMENTS FOR PALLETIZED OR SOLID-PILE STORAGE
IN LIQUID STORAGE ROOMS

| Class Liquid | Max Storage height (drums) | Maximum Quantity per Pile (gal.) | Max Quantity per Room (gal.) |
|--------------|----------------------------|----------------------------------|------------------------------|
| IA | 1 | 3000 | 12000 |
| IB | 1 | 5000 | 15000 |
| IC | 1 | 5000 | 15000 |
| II | 3 | 10000 | 25000 |
| III | 5 | 15000 | 50000 |

Table 3
AUTOMATIC SPRINKLER PROTECTION FOR SOLID-PILE AND PALLETIZED STORAGE
OF LIQUIDS IN METAL CONTAINERS AND PORTABLE TANKS^a

| Class Liquid | Density (gpm/sq.ft.) | Ceiling Sprinkler Demand Area (sq.ft.) | Maximum Spacing (ft.) | Minimum Hose Stream (gpm) | Minimum Duration Sprinklers and Hose Stream (hrs) |
|---------------|----------------------|--|-----------------------|---------------------------|---|
| IA | .6 | 5000 | 80 | 750 | 2 |
| IB, IC and II | .25 | | 100 | 5000 | |

Notes:

- a. The design areas is based on the use of a Class II standpipe system. Where Class I, 30% increase in design area.
- b. The criteria is limited to storage heights up to 4 feet or ceiling heights greater than 18 ft.

Please do not hesitate to reach us with any questions or comments.

Sincerely,



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The information contained herein has been carefully reviewed and to the best of AECOM's knowledge is correct; nevertheless, AECOM accepts no responsibility for accuracy of this information. Implementation of recommendations is the responsibility of the Owner, AA Sydcol. Liability on AECOM's part is hereby expressly excluded.

ATTACHMENTS

Att. 1 - AA Sydcot Site Plan, 2264 13th Street, Yuma AZ, 1 pg.

Att. 2 - AA Sydcot Warehouse Photographs, 2264 13th Street, Yuma AZ, 1 pg.

Att. 3 - AA Sydcot Warehouse Floor Plan, 2264 13th Street, Yuma AZ, 1 pg.

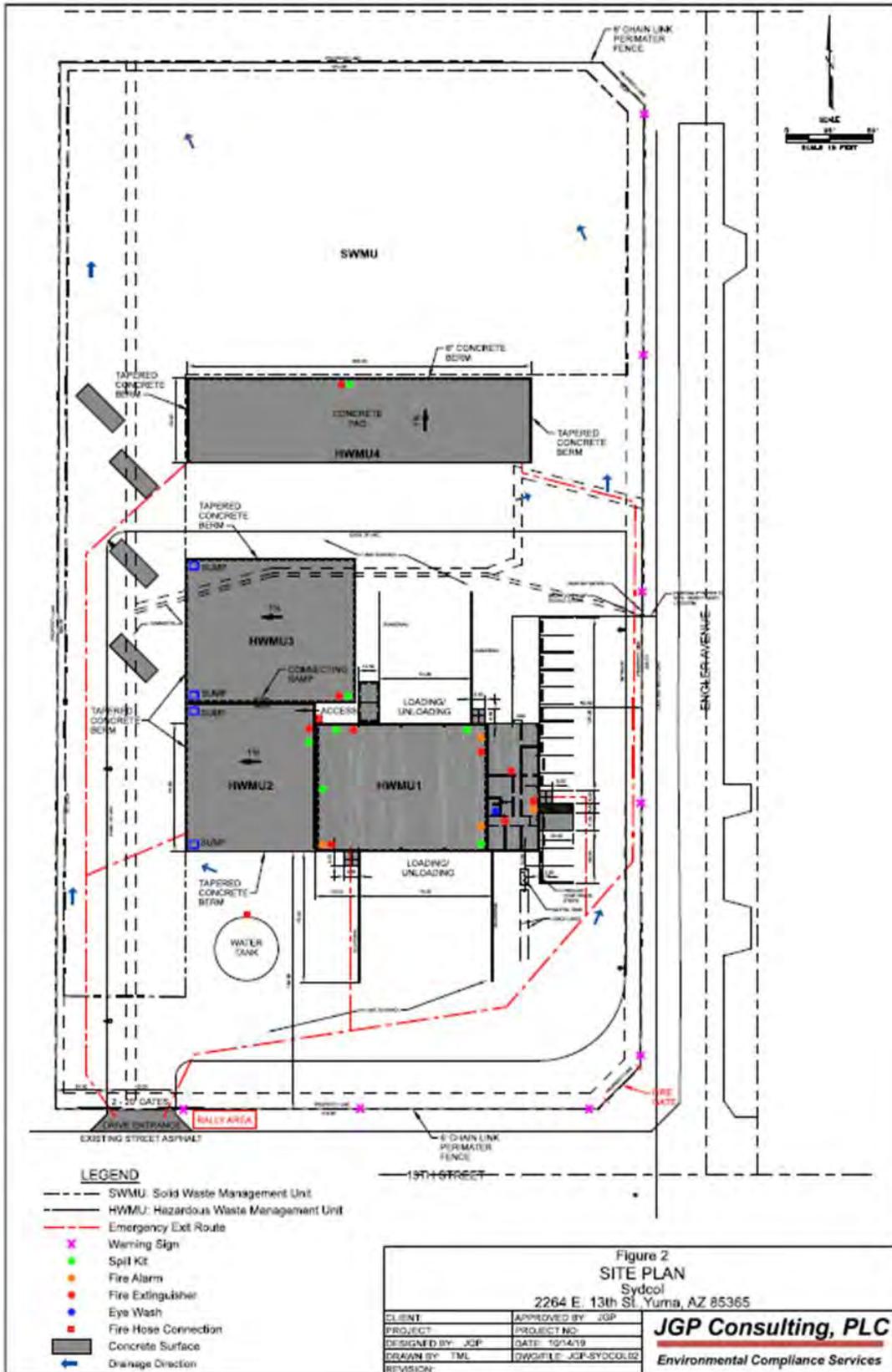
Att. 4 – AA Sydcot Containment, 2264 13th Street, Yuma AZ, 1 pg.

Att. 5 - AA Sydcot Hazardous Waste, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit), 1 pg.

Att. 6 - AA Sydcot Maximum Inventory by Waste Class, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)

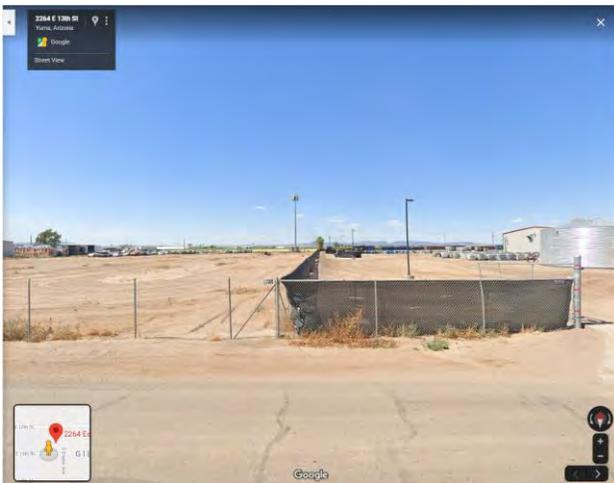
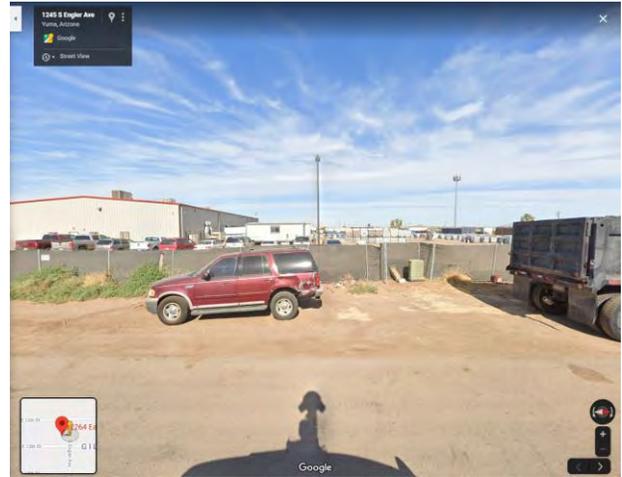
Att. 7 - American Sprinkler System Co., Inc letter dated April 21, 2016, 11 pgs.

AA Sydcoll Site Plan, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)

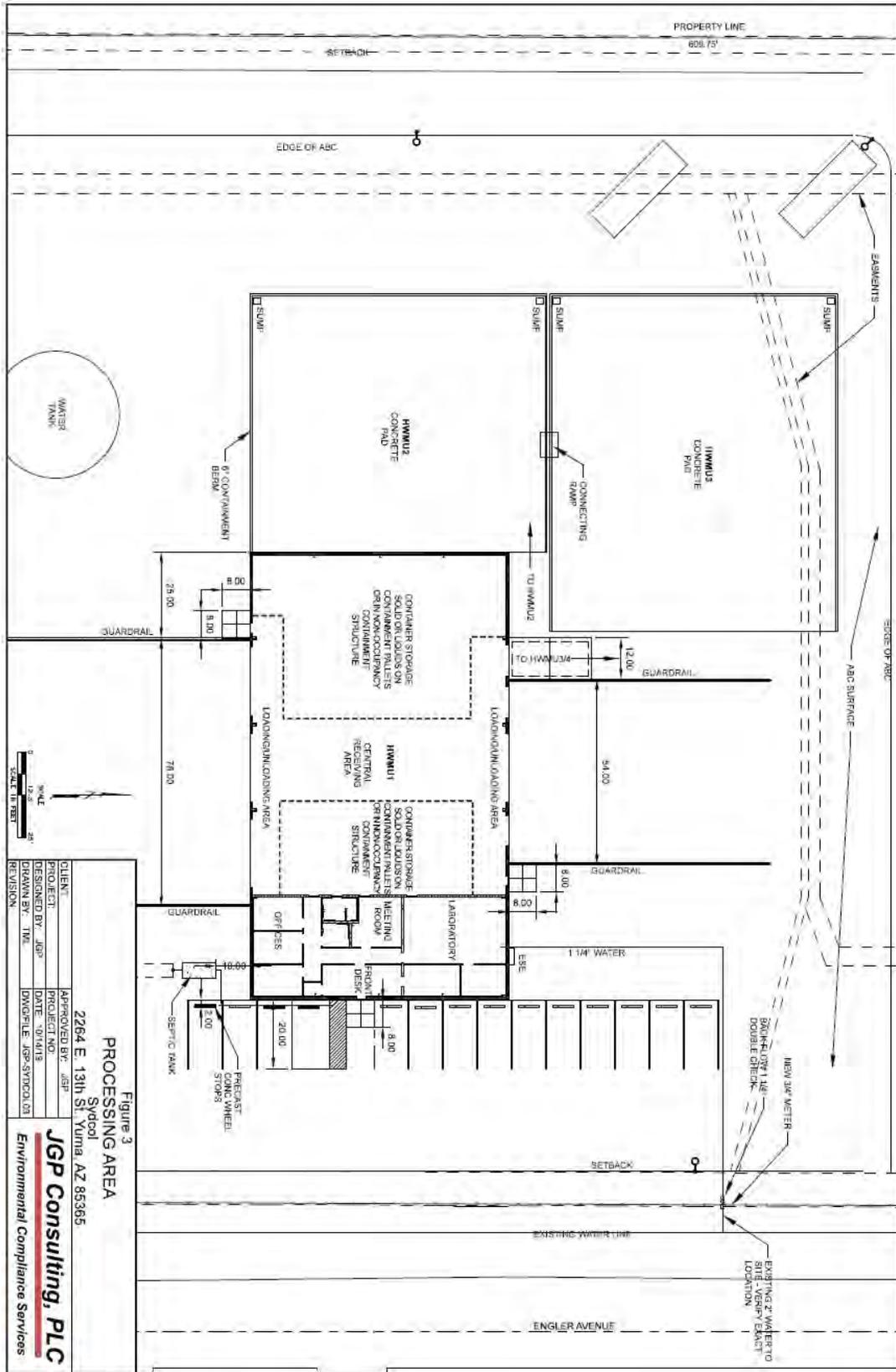


Att. 2

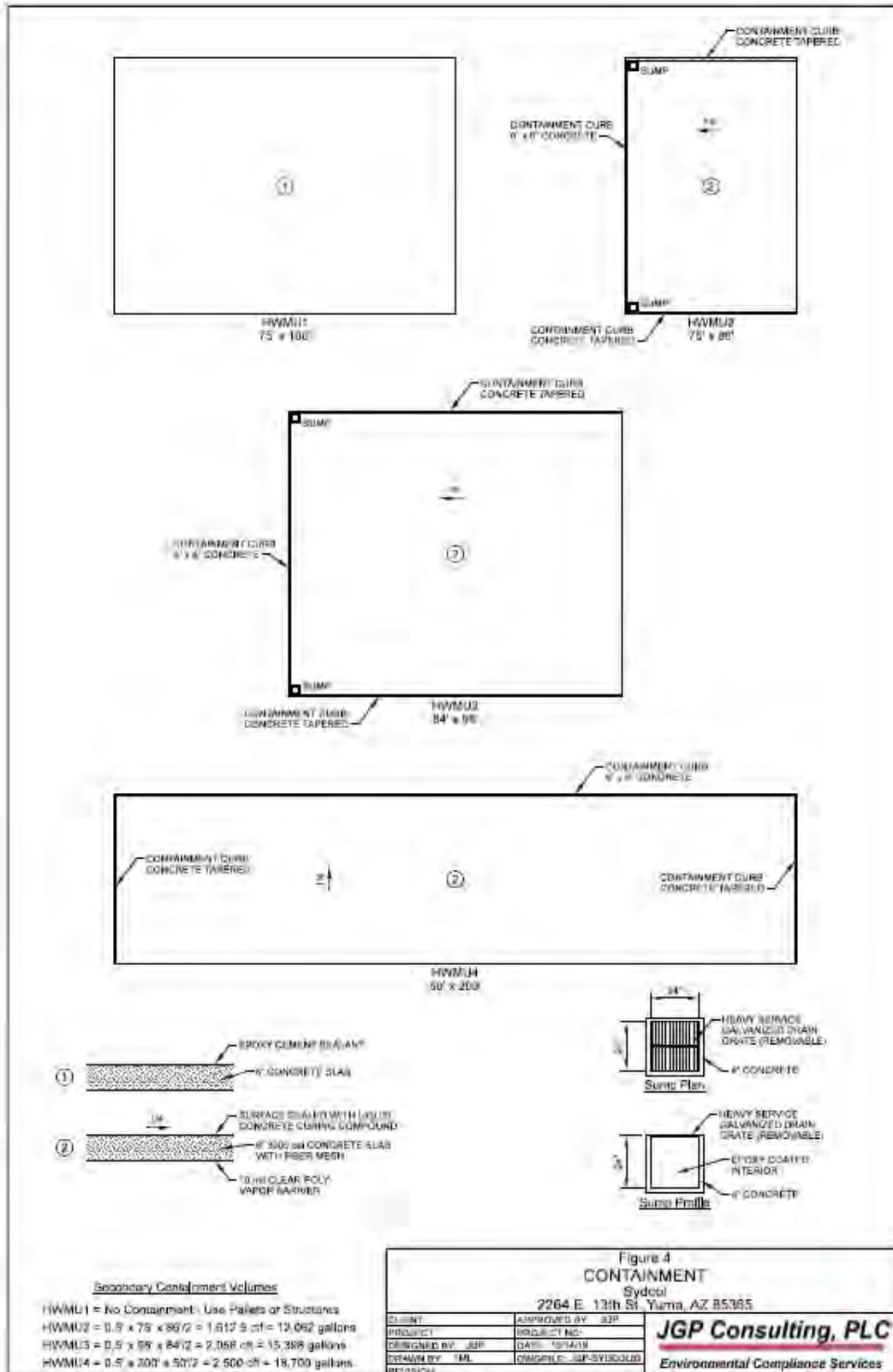
AA Sydcol Warehouse Photographs, 2264 13th Street, Yuma AZ (Ref. Google)



AA Sydcol Warehouse Floor Plan, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)



AA Sydcot Containment, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)



AA Sydcol Hazardous Waste, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)

| Waste type | RCRA Waste Codes | HMWUs | Estimated Annual Quantity (tons) |
|--------------------------------------|---|-------------|----------------------------------|
| Ignitables | D001 | 1*, 2, 3, 4 | 30,000 |
| Corrosives | D002 | 1*, 2, 3, 4 | 20,000 |
| Reactives | D003 | 1*, 2, 3, 4 | 200 |
| Toxicity: Heavy metals | D004-011 | 1*, 2, 3, 4 | 100 |
| Toxicity: pesticides/herbicides | D012-017, 020, 031 | 1*, 2, 3, 4 | 100 |
| Toxicity: Volatile organics | D018-019, 021-022, 028-029, 035, 039-040, 043 | 1*, 2, 3, 4 | 32,500 |
| Toxicity: Semi-volatile organics | D022-027, 032-034, 036-038, 041-042, | 1*, 2, 3, 4 | 200 |
| 2,4-dinitrotoluene, nitrobenzene | D030, D036 | 1*, 2, 3, 4 | 2 |
| Halogenated compounds: degreasing | F001 | 1*, 2, 3, 4 | 4,000 |
| Halogenated compounds: solvents | F002 | 1*, 2, 3, 4 | 4,000 |
| non-Halogenated compounds solvents | F003-005 | 1*, 2, 3, 4 | 8,000 |
| Listed electroplating wastes | F006-009 | 1*, 2, 3, 4 | 11,000 |
| Listed metal finishing wastes | F010-012, 019 | 1*, 2, 3, 4 | 2,500 |
| Chlorinated aliphatic hydrocarbons | F024-026 | 1*, 2, 3, 4 | 10 |
| Listed wood-preserving wastes | F032, F034-035 | 1*, 2, 3, 4 | 10 |
| Refinery WW treatment sludges | F037-038 | 1*, 2, 3, 4 | 10 |
| Hazardous leachates | F039 | 1*, 2, 3, 4 | 10 |
| P-listed commercial chemicals | P001-P205 | 1*, 2, 3, 4 | 100 |
| Commercial grade acetone | U002 | 1*, 2, 3, 4 | 100 |
| Commercial grade benzene | U019 | 1*, 2, 3, 4 | 100 |
| Commercial grade 1-butanol | U031 | 1*, 2, 3, 4 | 20 |
| Commercial grade methanol | U154 | 1*, 2, 3, 4 | 100 |
| Commercial grade methyl-ethyl ketone | U159 | 1*, 2, 3, 4 | 100 |
| other U-listed commercial chemicals | U001, 003-018, 020-030, 032-153, 154-158, 160-411 | 1*, 2, 3, 4 | 200 |
| Total | | | 113,362 |

* Containers with free liquids or listed wastes FO20, FO21, FO22, FO23, FO26, and FO27 to be placed on containment pallets or within non-occupancy structures in HWMU1.

AA Sydcot Maximum Inventory by Waste Class, 2264 13th Street, Yuma AZ (Ref. ADEQ Permit)

| Waste type | Percentage | Drum-equivalents |
|----------------------------------|------------|------------------|
| Ignitables | 43.77% | 1,556 |
| Corrosives | 18.24% | 648 |
| Reactives | 0.07% | 3 |
| Toxicity: Heavy metals | 9.12% | 324 |
| Toxicity: Pesticides | 0.18% | 6 |
| Toxicity: Volatile organics | 7.29% | 259 |
| Toxicity: Semi-volatile organics | 0.37% | 13 |
| Listed: F | 19.84% | 705 |
| Listed: P/U | 1.11% | 40 |
| Totals | 100% | 3,555 |

Maximum capacity:

3555 drum-equivalents

AMERICAN SPRINKLER SYSTEMS CO, INC.

AZ LIC ROC152543 CR16
www.americansprinklersys.com

11550 Somerton Ave -- Yuma, AZ 85365 -- 928.344.3560 -- 928.344.1990 (fax)

April 21, 2016

To: Pat Headington – Yuma County Development Services (pat.headington@yumacountyaz.gov)
Cori Schultz, Fire Marshal - Rural/Metro Fire Dept (Cori.Schultz@rmetro.com)

Re: Templar Project
AA Syd-Col

Gentlemen:

The original fire sprinkler design based on plastic totes being stacked to at least 8ft high (group A)
No other storage going over 12ft high (Class 1-3) or 10ft (class 4)

Original fire sprinkler system to be Extra Hazard 1
Density of .3/2000 (600gpm) with outside demand of 500gpm for total of 1,100gpm
Final hydraulic calculation determine the total flow needed would be 1,141gpm
Connection to be made to the City of Yuma water main on Engler Ave (6in)

However – no connection to the City of Yuma water system will be made.
Owner has elected to remain in Yuma County subject to Yuma County Building Codes

Proposed fire sprinkler design, fire pump & water storage tank:
Remain at extra hazard density of .3/2000ft²
The fire sprinkler system requires a minimum of 641gpm @ 32.2psi

Include the hose demand of 500gpm, total system demand is 1,141 gpm
For 90 minutes – tank would be 102,690 gallons, round up to 103,000 gallons. For the tank – that is useable gallons; the tank size would be slightly larger to accommodate the amount of water needed. (approximately 112k gallons)
The tank would be on a gravel foundation with a ring supply by the tank manufacture. It may be possible to retain an Engineer to determine if a concrete foundation would be needed.

Fire pump would be for the fire sprinkler system only
750gpm at 60psi (40psi is minimum but the price is the same)

A single hose & valve connection “hydrant” (size and threads to be determined) will be provided near to the tank for the fire department to draw water from. This would be located near the hard surface next to the fire pump and tank.

A Fire Department Connection (FDC) will be provided at the minimum distance from the building, located within a minimum distance from the “hydrant” for additional fire protection service.

The fire hydrant located on the SE corner of Engler Ave & 13th St provides a flow of 1,776gpm with (2) – 2½” outlets opened. At 20psi, the fire hydrant is capable of providing 2,582gpm. (Please see the attached flow test that I performed on 2/2/16)

For Type II-B building of 9,750ft² floor area, the fire flow required is 2,000gpm.

The fire hydrant on Engler Ave and 13th St along with the single outlet hydrant from the water storage tank should meet the fire flow demand.

Please see the attached preliminary rough drawings for additional information.

There will need to be additional submittals to YC Development Services for: (but not limited to)

- Final location of the fire pump and water storage tank

- Power for fire pump

- Access gate location

- Off-site monitoring of the fire pump

- Water storage tank design and foundation (either gravel ring or concrete pad)

- Revised fire sprinkler plans showing new design criteria, fire pump and tank, remote FDC lines

(all submittals are by others except for the fire sprinkler plans, pump)

(tank submittals will be by the tank supplier – possible review by design team prior)

If you have any questions, please feel free to contact me.

Thank you,



Robert Corbett

rcorbett@americansprinklersys.com

CC – Tim Babbit – JRP Construction (timjrpeconstruction@gmail.com)

Chuck Templar – AA Sydcol (ctemplar@sbcglobal.net)

11550 Somerton Ave
Yuma, AZ 85365

American Sprinkler System Co, INC

WATER FLOW TEST REPORT

AZ ROC 152543 (CR16)
(928) 344-3560

JOB # _____
HYDRANT # 588 DATE: 2-Feb-2016
TEST BY: Robert Corbett Day or Week: Tuesday TIME OF DAY: 1150am MIN. OF FLOW: 0.5
WATER SUPPLIED BY: City of Yuma
PURPOSE OF TEST: fire sprinkler design flow data

DATA

| FLOW HYDRANT(S) | A1 | A2 | A3 |
|---------------------|-------------------|-------------------|-----------------|
| SIZE OPENING: | <u>2.5</u> | <u>2.5</u> | <u>2.5</u> |
| COEFFICIENT: | <u>0.9</u> | <u>0.9</u> | |
| PITOT READING: | <u>28</u> | <u>28</u> | |
| Pumper Modification | <u>1</u> | <u>1</u> | <u>1</u> |
| GPM: | <u>888</u> | <u>888</u> | <u>0</u> |

TOTAL FLOW DURING TEST: 1776 GPM

STATIC READING: 80 PSI RESIDUAL: 50 PSI

RESULTS: AT 20 PSI RESIDUAL 2582 GPM AT 0 PSI 3016 GPM

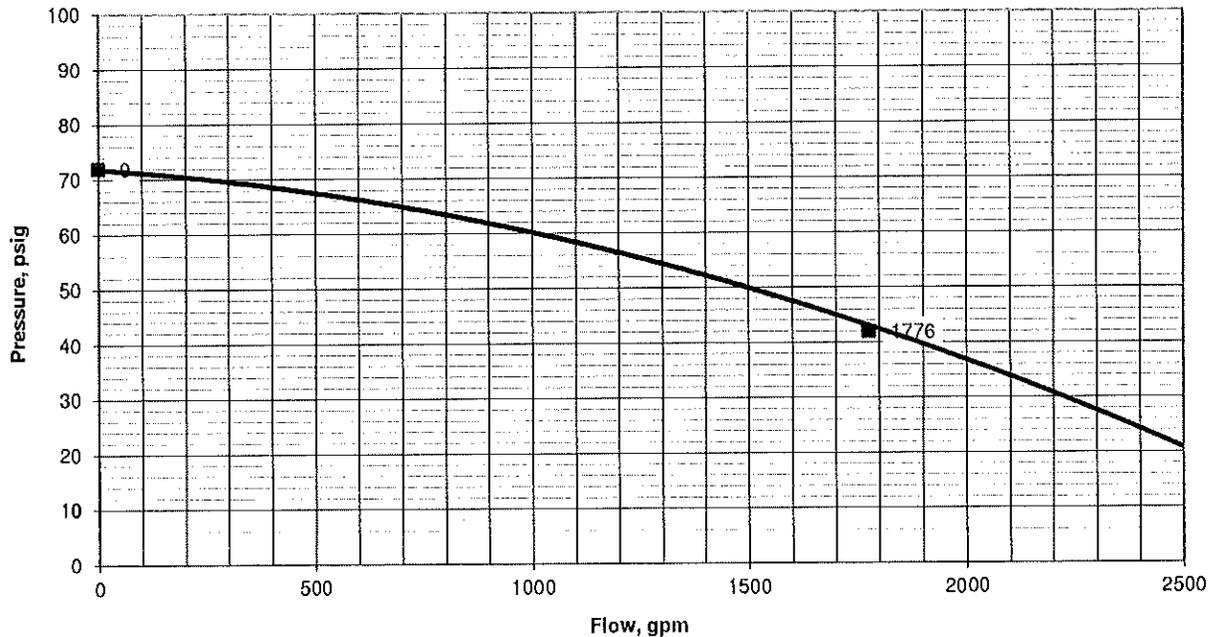
ESTIMATED CONSUMPTION: 888 GAL.

DATA FOR CALCULATION PURPOSES

WITH 10% S.F.

$P_s =$ 72 $P_r =$ 42 $Q =$ 1776

REMARKS:





City of YUMA

CITY OF YUMA
HYDRANT FLOW TEST PERMIT
(Type or Print in Ink)

Community Development
One City Plaza
Yuma, Arizona 85364
928-373-5163

Address of site to be served: 13th ST AND EIGHTH AVE
Name: _____ Phone: () _____
Hydrant Number: 588 Location: _____

See diagram on reverse.

To schedule test please call the City's Public Works Department, Utilities Division,
Ruben Reyna at 928-373-4604 Five (5) day advance notice required.

Test Fee per Flowing Hydrant: \$ _____
X # of Hydrants: _____
TOTAL FEE: \$ _____

Water Plant characteristics at time of test.

Zone: _____ # Pumps in Operation: _____ Tank Elevation: _____

Test Report
NFPA 291 1985

PAID

Test conducted by: ROBERT CORBETT CK NO. CIC

Representative of: AMERICAN SPRINKLER DATE 1/25/16

Witness: [Signature]

Date: 2/2/16 Time Started: 1150 AM PM

Consumption Rate During Test: _____ GPM

Recovery Capacity During Test: _____ GPM

Flow Hydrants: A¹ A² A³ A⁴

Size Nozzle: 2 1/2 2 1/2

Pilot Reading: 283 283

Discha Coefficient: .9

GPM: 1776 Total GPM: _____

Static: 80 Residual: 50

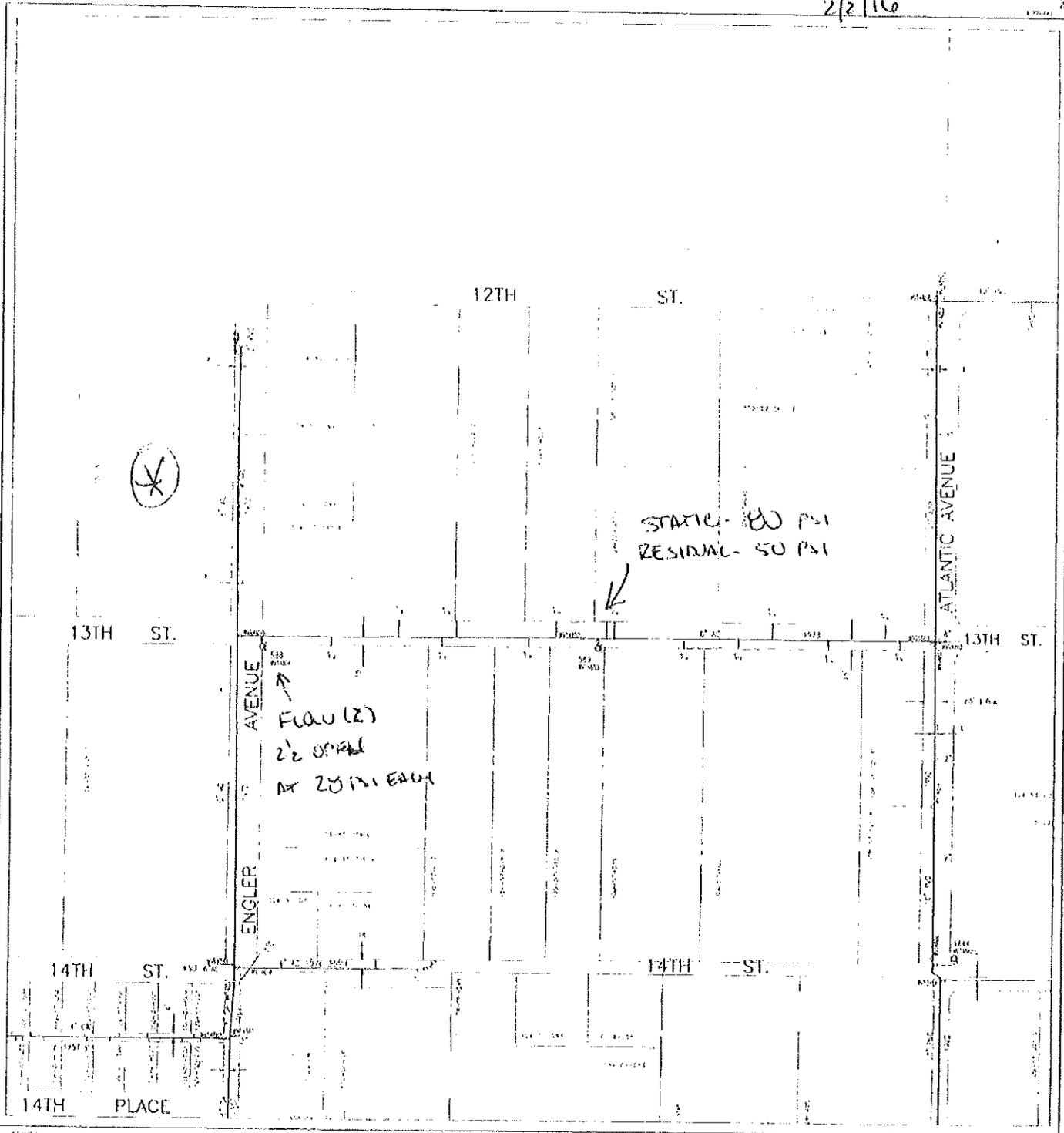
Projected results @

20 psi Residual 2532 GPM or @ (1) PSI Residual: 3016 GPM

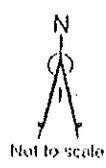
Time Completed: _____ am _____ pm

WATER DISTRIBUTION SYSTEM

2/2/10



Prepared by
City of Yuma
 City Engineering Department



| | | |
|------|------|------|
| 1227 | 1228 | 1229 |
| 1327 | 1328 | 1329 |
| 1427 | 1428 | 1429 |

Map Number
1328

Revision Date:
June 2011

Supersedes: March 2010

COPYRIGHT © 2011 CITY OF YUMA, ARIZONA
 The City of Yuma makes no claims concerning the accuracy of this map nor assumes any liability resulting from the use of the information herein.

Subject: RE: Templar Project - AA Sydcol -- fire sprinkler information
From: Pat Headington (Pat.Headington@yumacountyaz.gov)
To: rcorbett@americansprinklersys.com; Cori.Schultz@rmetro.com;
Cc: timjrconstruction@gmail.com; ctempler@sbcglobal.net;
Date: Tuesday, May 10, 2016 10:57 AM

Good morning Robert,

Yuma County has reviewed the proposed revisions for fire protection systems for the Syd-Col project.

We find the revised proposal to meet the intent of the 2003 International Fire Code.

Please provide the necessary documents to complete the review and approval process.

Additionally, SDS sheets and approximate quantities of materials are still required for this project.

Please let me know if you have any additional questions,

Patrick Headington, CBO

Yuma County

Department of Development Services

2351 West 26th Street

Yuma, Az 85364

928-817-5068

Achieving results can never become more important than the means to their achievement.

From: Robert Corbett [mailto:robert.assci@gmail.com] **On Behalf Of** Robert Corbett
Sent: Monday, April 25, 2016 10:50 AM
To: Pat Headington; Cori Schultz
Cc: Tim Babbitt; ctempler@sbcglobal.net
Subject: Re: Templar Project - AA Sydcol -- fire sprinkler information

I thought I sent this out on Thursday afternoon.

Attached is my revised design proposal for the fire sprinkler system, fire pump and water storage tank. With the plan review letters Pat provided, I was able to figure out more of what was being looked for.

I did notice one error.

The fire flow demand was based on a type V-B building.

However, the approved plans show the building to be a type II-B so I based my figures on the approved plans.

Robert Corbett
11550 Somerton Ave
Yuma, AZ 85365
AZ ROC 152543 (CR16)
928-344-3560 (office)
928-344-1990 (fax)
928-210-2376 (cell - iPhone)

On 3/25/2016 3:14 PM, Pat Headington wrote:

Gentlemen,

Please find the attached letter in response to your request for sprinkler design to an ordinary hazard II classification.

A hard copy will go out in the mail on Monday.

Best regards,

Patrick Headington, CBO

Yuma County

Department of Development Services

2351 West 26th Street

Yuma, Az 85364

928-817-5068

Achieving results can never become more important than the means to their achievement.

From: Robert Corbett [<mailto:robert.assci@gmail.com>] **On Behalf Of** Robert Corbett
Sent: Wednesday, March 16, 2016 10:59 AM
To: Pat Headington; Cori.Schultz@rmetro.com

Cc: Tim Babbitt; ctempler@sbcglobal.net
Subject: Templar Project - AA Sydcoll -- fire sprinkler information

Gentlemen (and Lady)

Attached is my proposed fire sprinkler design criteria based on the information provided.

The owner has expressed that he does (and must) meet current building and fire codes - he wants to do so meeting the minimal requirements.

Although we all sometimes wish to go above and beyond what is required - there are a few outside factors that are beyond what we know the owner(s) can do and provide.

I am certain Mr Templer wants to get his new building completed and in operation as quick as possible.

Based on our on-site meeting and going over with my designer about what is needed and can be provided - I have outlined the minimal requirements.

If you look at my attached drawings - I have measured out the locations & distances for FD access and the FDC location based on requirements provided by Yuma County Development.

This is for preliminary approval so I can get this project re-submitted (my part) and the contractor & owner can coordinate the other submittals needed/required.

(**I will be out of town 3/17 and return 3/20 - I will have NO phone but I will have email access**)

Robert Corbett
11550 Somerton Ave
Yuma, AZ 85365
AZ ROC 152543 (CR16)
928-344-3560 (office)
928-344-1990 (fax)
928-210-2376 (cell - iPhone)

On 3/11/2016 1:36 PM, Tim Babbitt wrote:

----- Forwarded message -----
From: <ctempler@sbcglobal.net>
Date: Mar 11, 2016 1:13 PM
Subject: Fwd: Contact Information
To: "Tim Babbitt" <timjrconstruction@gmail.com>
Cc:

Sent from my iPhone

Begin forwarded message:

From: Cori Schultz <Cori.Schultz@rmetro.com>
Date: March 11, 2016 at 10:11:28 AM MST
To: "pat.headington@yumacountyaz.gov"
<pat.headington@yumacountyaz.gov>, Charles Templer
<ctempler@sbcglobal.net>
Subject: Re: Contact Information

Good morning Chuck,

Per our conversation yesterday, I spoke with Chief Hannon and we reviewed the list given to us by you regarding the materials that will be on your property. Chief Hannon and I also reviewed NFPA 13, Chapter 5 in regards to Ordinary Group 2 and Extra High Group 1. Chief Hannon and myself agree for firefighting purposes for this property we strongly recommend Extra High Group 1 for both the interior and exterior.

Please feel free to contact me with any questions. I am out of the office today but I'll return Monday morning at 7:00 am.

Thank you,

Cori Schultz, Fire Marshal
Rural/Metro Fire Dept
2029 S Arizona Ave
Yuma, Az 85364
(928) 539-1807

From: Charles Templer <ctempler@sbcglobal.net>
Sent: Thursday, March 10, 2016 8:59:57 PM
To: pat.headington@yumacountyaz.gov; Cori Schultz
Subject: Contact Information

Cori and Pat:

Thank you both very much for coming out to the property today and giving us your input regarding our fire suppression issues.

Hopefully we will be able to sort through the information and submit some detailed plans very soon.

Should you need to contact me at any time please utilize the following:

ctempler@sbcglobal.net

714-273-8150

Sincerely,

Chuck Templer

AA Sydcot LLC

This communication may contain confidential and/or proprietary information and may not be disclosed to anyone other than the intended addressee. Any other disclosure is strictly prohibited by law. If you are not the intended addressee, you have received this communication in error. Please notify the sender immediately and destroy the communication including all content and any attachments. Thank you.



Anthony Leverock <leverock.anthony@azdeq.gov>

Substantive Review Comments 2 - Learning Sites; Procedures to Prevent Hazards

1 message

Anthony Leverock <leverock.anthony@azdeq.gov>

Wed, Jan 12, 2022 at 11:21 AM

To: "James G. Peck" <james@jgpcon.com>

Cc: Robin Thomas <thomas.robin@azdeq.gov>, Charles Templer <chuck@sydcol.com>, Jessica Kohls <kohls.jessica@azdeq.gov>

James -

You may recall that we discussed with you - perhaps during the substantive review for the previous permit application - the topic of learning sites information for permit applications. Since over a year has elapsed -- and this is a new LTF -- we will need you to submit the learning sites information again.

Attached is the implementation plan for the ADEQ Learning Sites Policy.

Basically, you must identify learning sites within 2 miles of the facility and return your report to us as an addendum to the application. Information concerning submittal of learning sites information is found on the AZDEQ website here:

<http://www.azdeq.gov/substantivepolicy>
under the header numbered 1100.

FYI, ultimately, the objective will be to establish procedures to comply with the policy -- an example would be to have procedures and documentation developed to inform transporters of routes to be used to avoid any learning sites within that radius. AASydcol would prepare a sheet to notify transporters and for them to sign to acknowledge they have been apprised of this requirement.

Provide this information by January 29, 2022

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

**azdeq.gov****Your feedback matters to ADEQ. Visit azdeq.gov/feedback****Attachment SR Comments 2 - Learning Sites Policy Implementation Plan Handout.doc**

49K

Substantive Review Comments 3 - Container Management Plan

Anthony Leverock <leverock.anthony@azdeq.gov>

Fri, Jan 21, 2022 at 3:43 PM

To: "James G. Peck" <james@jgpcon.com>

Cc: Robin Thomas <thomas.robin@azdeq.gov>, Charles Templer <chuck@sydcol.com>, Jessica Kohls <kohls.jessica@azdeq.gov>

James -

Attached are ADEQ's comments on Attachment D of the hazardous waste permit application. Please submit a response with a modified permit application by 2/4/22.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



azdeq.gov

Your feedback matters to ADEQ. Visit azdeq.gov/feedback



SR3 Comments on Container Management Plan.pdf

109K

Comments on General Information (Att A), Facility Description (Att B) and Container Management Plan (Att D)

Facility Description

1. Delete the portion of the Note at the bottom of Table 1 “AA Sydcol Hazardous Wastes”, that says “or within non-occupancy structures in HWMU1 - it continues to reference the “non-occupancy containment buildings” in HWMU1. It appears these units are not going to be used at the AAS facility.
2. Attachment A, Section 8.2 Unacceptable Wastes, Item 7 Lithium Ion Batteries – Clarify if all lithium ion batteries are identified as unacceptable wastes, including button batteries, and cell phone batteries.

Container Management Plan (Att D)

1. Page 2, Section 1.0, Para 1 says: “Hazardous wastes in tanks or containers subject to hazardous waste transporter requirements in 40 CFR §263 may be stored in a designated transfer storage area for up to 10 days prior to removal from the site.”
 - a. Delete the mention of tanks as there are no hazardous waste storage tanks at AAS. A tank is a nonportable unit and is not subject to hazardous waste transporter requirements. If this was supposed to say tanker trucks, then clarify (tanker trucks may be considered to be containers when idle at the facility, and storing waste).
 - b. Include a clarifying statement here that says that this only applies to containers of hazardous waste containers that are not designated for storage at AAS.
(We have explained in the prior permit application review that EPA has clarified in a few guidance that a designated facility does not have the 10-day storage option for such wastes. For this paragraph in the CMP it remains unclear what is being described relative to the status of the waste containers. The EPA guidance states that hazardous wastes that are in transport may be off-loaded, consolidated, repackaged per DOT requirements, and other transportation-related activities at a location for 10 days, including at a 10-day transfer area at AAS, but they remain in transport and may not be accepted by AAS for storage as the designated facility. Thus, the manifest for such wastes should not show receipt at AAS unless AAS acts as the transporter, and is responsible for forwarding the waste on to the designated facility. Perhaps part of the confusion here is the use of the words “designated transfer storage area.”)
2. Page 3, Section 2.1, – The section identifies Appendix A as showing the label that will be used for. Although the CMP doesn’t say that the label shown in Appendix A is an “example or is a typical label, it will still be necessary for the CMP to also specify, either in this or another section, the data elements that must be on the label.
3. Page 3, Section 2.1 – The section specifies Appendix B as an “example of the check in sheet.” In this or another section, The CMP must specify the data elements that must appear on the check in sheet.
4. Page 6, Section 3.2, Para 1 – The CMP specifies a maximum stacking height of 9 feet. The 9-foot specification comes from a general assessment of fall height for 55-gallon containers – it wasn’t for 330-gallon totes. Still, this would be an acceptable spec if the stack can be

inspected from all sides to verify the condition of the container and the pallet or frame (for totes). The problem is that the CMP also specifies an interim aisle spacing of 18 inches, which would be too narrow to fit a ladder safely to perform an adequate inspection of the condition of the top container in a stack, if it reaches 9 feet. Update the CMP to accommodate this issue – an acceptable modification would be to allow a 9 foot stack height when the aisle space allows a proper inspection of the containers from all sides.

5. Page 6, Section 3.2, Para 3 – The paragraph describes the inspection frequency and states that an inspection log will be maintained. The inspection log should be identified by number and its location in the application.
6. Page 7, Section 3.4, Para 3 – This section uses the term “transportation tank”. It may be clearer to use the more common term “transport tank”.
7. Page 8, Section 3.5, Para 2 - The CMP specifies a timeframe of 24 hours for the permittee to load containers in an outbound vehicle. “...all containers will be loaded into transport within 24 hours of being staged outside of an HWMU.” However, para 2 states: “In the event outbound wastes need to be staged outside of a HWMU, all containers will be loaded into transport within 24 hours of being staged outside of a HWMU. This paragraph allows storage of containers overnight outside of an HWMU, which is not permissible. The timeframe previously discussed with AAS is only intended to apply to those containers that are loaded in the outbound vehicle. Those containers that are staged must remain in the designated HWMU, if they are not actively managed.
8. Page 9, Section 4.0 – This section generally describes the three container storage areas. It references Figures in the Appendix to show design details. The application proposes that no coatings be used on any of the pads, but that a liner be used in HWMU1 and HWMU2, and that containment pallets be used for containers containing liquids. We have agreed to the proposal in concept as being compliant with the 40 CFR §Subpart I requirements. However:
 - a. Figure 3, showing the design of the containment must be sealed/certified by an Arizona Engineer;
 - b. Figure 3 shows a rolled curb between HWMU1 and HWMU2, describe this curb and reference the construction details in the Figures (i.e, see specific comment toward the end of these comments).
 - c. Describe and show the means that will be used to prevent water from migrating through expansion joints e.g., describe the water stops or equivalent that will to be used;
 - d. The underlying liner of HWMU1 and -2 are to be used to meet the containment standards of 40 CFR 264.175; however, it may not be readily inspected after its construction, so it is important that the construction specifications be strictly adhered to. The section must reference a plan for quality assurance of the construction of the containment. The plan must be sealed/certified by an Arizona engineer. The plan should include details of the construction of the two hazardous waste storage pads, including specifications of:
 - compaction of the aggregate base; describe the ASTM or other specs;
 - the section specifies a 60 mil HDPE liner will be used. Specify other details, including its manufacturer and product identification, and provide the chemical resistance and tensile strength details.

- details on the concrete to be used, including the load bearing capacity, and the slump
- quality assurance tests of the liner;
- frequency of inspections of the construction;

Note: the permit will include a schedule of compliance permit condition requiring that a final report, with as-built diagrams and an engineer's certification be submitted upon completion of construction, and following the engineer's inspection. Final as-built diagrams and engineering certification will be included in the permit.

9. Page 9, Section 4.0 – The section describes an overhang at HWMU1. Clarify if this overhang is already in existence or if it will be constructed at the time that HWMU1 is constructed? Verify that the overhang at HWMU1 does not or will not have any supports that go through the concrete and/or liner. If so, then include details on how the interface between the pole and the concrete will be sealed to prevent infiltration. If the supports penetrate HWMU1, then engineering drawings will be required, similar to other design features.
10. Page 9, Section 4.0 – The calculations for containment capacity for the three hazardous waste storage units must be sealed/certified by an Arizona Engineer.
11. Page 9, Section 4.0 – “The HWMUs will not be designated for storage of specific types of waste. Incompatible wastes will not be stored within 20 feet of each other, and flammable liquids will not be stored within 25 feet of a strong oxidizer waste. Table 1 lists incompatible wastes for determining separation.” The CMP must describe how these objectives will be met. Just placing a statement in the CMP that incompatible wastes will not be stored next to each other is not sufficient. Establishing designated areas as an operational design for container storage works, and other TSDFs have established something similar using an aisle system, designated for the different waste types. Propose a system to maintain the distance. Incorporate it into the CMP.
12. Page 9, Section 4.1 – “Contained liquids will be removed from HWMUs using a vacuum truck to extract liquids collected along the berm at the low end of the pad.”
 - a. Point to the other part of the CMP that provides the detail (e.g., ...”as described in Section 4.4”).
 - b. Regarding the use of a vacuum truck. Does it belong to AAS? Where will this truck be staged. Include such detail in the procedures to prevent hazards section of the application.
13. Page 11, Section 4.4 – “Liquids from unanticipated leaks, spills, or precipitation will collect against the containment berm on the south side of HWMU1, the west side of HWMU2, and on the north side of HWMU3.” Reference/identify the diagram(s) that show the slope for each of the HWMUs.
14. Page 11, Section 4.4 – “Accumulated liquids in these areas will be removed within one business day of detection by pumps, vacuums, absorbents, or other methods.” Modify the CMP to state that a release of hazardous waste must be addressed as soon as practicable. Also, the CMP should mention that the discovery will be noted in the operating record, and identify the form that will be used to document this, and where it is located within the permit application.

15. Page 11, Section 4.4 – “Stormwater runoff collected from the HWMU surface areas will be analytically tested for hazardous waste characteristics. Runoff that exhibits a toxicity characteristic or exceeds a presumptive contained-in concentration will be profiled for disposal as a hazardous waste.”
 - a. The CMP must be expanded to include the other characteristic determinations, and how the decisions will be made to test and perform the determinations;
 - b. The CMP must elaborate on the process for making contained-in determinations for contaminated media. An SOP should be prepared – it should describe how the COCs will be identified, how the specific maximum constituent levels in media will be specified, and how the comparisons will be calculated.
16. Page 11, Section 4.4 – “Recovered liquid wastes from spills and stormwater collected from HWMU containment areas will be placed in containers and reintroduced to the processing schedule.” The CMP must be updated with additional detail, and the term “processing schedule” must be clarified as it is not clear. The procedures for recovery of spills from waste and from stormwater are likely different. As noted in the comment above, the CMP needs to include the means used to identify and classify the liquid, and if necessary make a waste determination. Worker protections as appropriate must be referenced.
17. Page 11, Section 4.4 – Accumulated liquids in these areas will be removed within one business day of detection by pumps, vacuums, absorbents, or other methods.”
18. Page 11, Section 4.4 – “Information and data concerning the quantities of liquid recovered from leak, spill, and precipitation events will be recorded in the facility records database.” Regarding the facility records database, ADEQ will require AAS to produce an inventory report of the hazardous wastes currently stored at the facility. The inventory report will be printed out not less frequently than weekly and will be maintained in a mailbox that is accessible to the emergency responders at the entrance gate. Update the section of the permit application discussing the records data base with this information. Identify in the Contingency Plan the location of the mailbox, and provide a sample of the inventory report or list the data elements that are found on the inventory.
19. Figure 3 - The figure must be sealed by an Arizona Registered professional engineer in the appropriate discipline. It shows a “containment rolled concrete curb” between HWMU1 and HWMU2. Provide additional detail on this curb either in a separate figure or in an additional detail on the same figure;
20. Figures 4 and 5 – The Figures must be sealed by an Arizona Registered professional engineer in the appropriate discipline;
21. General comment on the storage of Lithium Ion (LION) batteries. Depending on the generator and the waste determination made for the waste, waste LION batteries waste may be managed as a solid waste/household hazardous waste (HHW), as Universal Waste (UW), per R18-8-273, or as fully regulated hazardous waste, per R18-8-261. AAS is free to accept HHW-managed LION batteries, but is advised that ADEQ will use omnibus authority to

require additional measures to ensure safe management of LION batteries managed as UW or fully-regulated HW at the facility. The hazardous waste permit will include such protective measures for all areas used for classifying, storing, staging, accumulating, or consolidating LION batteries.

For UW and HW LION batteries, AAS may elect to receive “small” LION batteries (below a specified capacity), such as button, AA, AAA, batteries; however, AAS must specify the threshold in the permit application. If waste LION batteries larger than this threshold are to be managed at AAS, it must provide additional detail concerning their size and type prior to accepting the waste at the facility. The detail must include:

- a. Identify in the CMP all areas that will store, accumulate, consolidate, or stage LION batteries;
- b. Demonstration that all areas storing, accumulating, consolidating, and staging LION batteries have adequate fire protection measures (e.g., within range of a fire hose operated by an emergency responder, and providing onsite fire extinguishers of adequate number, size, and type);
- c. Show in the CMP that LION batteries will be stored separately from other combustible, flammable, ignitable or toxic materials;
- d. Show in the CMP that all areas storing, accumulating, consolidating, and staging LION batteries include additional aisle spacing and spacing between piles of LION batteries, so as to allow the unhindered movement of fire-fighting equipment.

Status of Design Package for Container Storage Pads

6 messages

Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Mar 17, 2022 at 5:50 PM

To: "James G. Peck" <james@jgpcon.com>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

James -

Sorry for the delay in the response. I agree with the proposed change. Since the base course will be compacted with a vibratory plate compactor, I would think it to be prudent to put the liner on top of the aggregate (after it is compacted). However, I am curious as to the placement of the 16 oz/yd² non-woven geotextile protector. I assume it would be placed under the liner in order to protect it from any sharp edges of the aggregate. This must be clarified in the submittal.

You will need to update Attachment D, Section 4.0, and the associated diagrams, as well as the QCQA Plan at least at Sections 6.2 and 6.3, and also change the order of a few of the items in Section 7 (e.g., move 7.5 to before 7.4). Other sections may require revision in those documents.

Thank you.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

**azdeq.gov****Your feedback matters to ADEQ. Visit azdeq.gov/feedback**

On Thu, Mar 17, 2022 at 3:22 PM James G. Peck <james@jgpcon.com> wrote:

Anthony:

We should have the Sydcol HWMU structural plans finished tomorrow. One thing the structural engineer wants to change is to put the base course first, the liner on top of the base course and then the slab on top of the liner. He thinks this will reduce the potential to damage the liner when handling the base course material and facilitate a more intimate contact between the slab and the liner. Also he mentioned that contractors are used to installing vapor barriers in this manner without damaging the membrane, so constructability should not be an issue.

Also the perimeter berms will be constructed in the same pour as the slab rather than a cold joint between the berm and the slab, which will reduce joints and minimize potential damage to the liner.

Do you see any issues with this change from the submitted conceptual figures?

Sincerely,

-James

On 2022-03-16 17:24, Anthony Leverock wrote:

OK, thanks for the update.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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On Wed, Mar 16, 2022 at 4:31 PM James G. Peck <james@jgpcon.com> wrote:

Anthony:

Just a note that we have received a draft, unstamped version of the structural plans for HWMU1 and HWMU2. We're reviewing them now but unfortunately I don't think we will have a stamped copy today. I'll let you know tomorrow if there are any issues with the plans.

FYI, the shade structure is mounted on columns outside of HWMU1 and the concrete strength is 4000 psi.

Sincerely,

-James

On 2022-03-16 11:16, Anthony Leverock wrote:

James -

You were projecting submittal of the design for the container storage pads by about this time. What is its status? Please get back to me by COB today. Thank you.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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Thu, Mar 17, 2022 at 3:20 PM

James G. Peck <james@jgpcon.com>
To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, chuck@sydcol.com

Anthony:

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Anthony Leverock <leverock.anthony@azdeq.gov>
To: "James G. Peck" <james@jgpcn.com>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>

Wed, Mar 16, 2022 at 5:24 PM

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Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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Anthony Leverock

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Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>

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Associate Engineer
Hazardous Waste Permits/Support Unit
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James G. Peck <james@jgpcon.com>
To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>

Wed, Mar 16, 2022 at 1:43 PM

Anthony:

I spoke with the structural engineer yesterday and he was projecting to have something to us by this afternoon. I'll forward your email and see where we are at.

Sincerely,

-James

On 2022-03-16 11:16, Anthony Leverock wrote:

James -

You were projecting submittal of the design for the container storage pads by about this time. What is its status? Please get back to me by COB today. Thank you.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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Anthony Leverock <leverock.anthony@azdeq.gov>
To: "James G. Peck" <james@jgpcon.com>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>

Wed, Mar 16, 2022 at 11:16 AM

James -

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Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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9441.1989(30)

United States Environmental Protection Agency
Washington, D.C. 20460
Office of Solid Waste and Emergency Response

June 19, 1989

Mr. Thomas C. Jorling
Commissioner
Department of Environmental
Conservation
State of New York
Albany, New York 12233-1010

Dear Mr. Jorling:

I am writing in response to your letter of May 5, 1989, in which you ask numerous questions concerning the regulatory status, under the Resource Conservation and Recovery Act (RCRA), of environmental media (ground water, soil, and sediment) contaminated with RCRA-listed hazardous waste.

As you point out in your letter, it is correct that the Agency's "contained-in" interpretation is that contaminated environmental media must be managed as if they were hazardous wastes until they no longer contain the listed waste, or are delisted. This leads to the critical question of when an environmental medium contaminated by listed hazardous waste ceases to be a listed hazardous waste. In your letter, you discuss three possible answers (based on previous EPA positions and documents) which you believe address this question, and request the Agency to clarify its interpretation. Each of these is discussed below.

The first possible answer you cite would be that the contaminated media would be a hazardous waste unless and until it is delisted, based on the "mixture" and "derived-from" rules. As you correctly state in your letter, a waste that meets a listing description due to the application of either of these rules remains a listed hazardous waste until it is delisted. However, these two rules do not pertain to contaminated environmental media. Under our regulations, contaminated media are not considered solid wastes in the sense of being abandoned, recycled, or inherently waste-like as

those terms are defined in the regulations. Therefore, contaminated environmental media cannot be considered a hazardous waste via the "mixture" rule (i.e., to have a hazardous waste mixture, a hazardous waste must be mixed with a solid waste per 40 CFR 261.3(a)(2)(iv)). Similarly, the "derived-from" rule does not apply to contaminated media. Our basis for stating that contaminated environmental media must be managed as hazardous wastes is that they "contain" listed hazardous waste. These environmental media must be managed as hazardous waste because, and only as long as, they "contain" a listed hazardous waste, (i.e., until decontaminated).

The second possibility you mention is that environmental media contaminated with a RCRA listed waste no longer have to be managed as a hazardous waste if the hazardous constituents are completely removed by treatment. This is consistent with the Agency's "contained-in" interpretation and represents the Agency's current policy.

The third possibility you discuss comes from Sylvia Lowrance's January 24, 1989, memorandum that you cited in your letter. This memorandum indicates that OSW has not issued any definitive guidance as to when, or at what levels, environmental media contaminated with listed hazardous waste are no longer considered to contain that hazardous waste. It also states that until such definitive guidance is issued, the Regions may determine these levels on a case-specific basis. Where this determination involves an authorized State, such as New York, our policy is that the State may also make such a determination.

Related to such a determination, you ask whether a risk assessment approach that addressed the public health and environmental impacts of hazardous constituents remaining in treatment residuals would be acceptable. This approach would be acceptable for contaminated media, but would not be acceptable for "derived-from" wastes under our current rules. Additionally, consistent with the statute, you could substitute more stringent standards or criteria for contaminated environmental media than those recommended by the Federal EPA if you determined it to be appropriate.

The Agency is currently involved in a rulemaking effort directed at setting de minimis levels for hazardous constituents

below which eligible listed wastes, treatment residuals from those wastes, and environmental media contaminated with those listed wastes would no longer have to be managed as hazardous wastes. The approach being contemplated in the De Minimis program would be similar to that used in the proposed RCRA Clean Closure Guidance in terms of the exposure scenario (direct ingestion), the management scenario (not in a waste management unit), and the levels (primarily health-based).

Your final question related to whether the "remove and decontaminate" procedure set forth in the March 19, 1987 Federal Register preamble to the conforming regulations on closing surface impoundments applies when making complete removal determinations for soil. These procedures do apply when one chooses to clean close a hazardous waste surface impoundment by removing the waste. The preamble language states that the Agency interprets the term "remove" and "decontaminate" to mean removal of all wastes, liners, and/or leachate (including ground water) that pose a substantial present or potential threat to human health or the environment (52 FR 8796). Further discussion of these requirements is provided in a clarification notice published on March 28, 1988, (53 FR 1144) and in OSWER Policy Directive # 9476.00-18 on demonstrating equivalence of Part 265 clean closure with Part 264 requirements (copy enclosed).

I hope that this response will be helpful to you in establishing and implementing New York's hazardous waste policies on related issues. Should you have additional questions, please contact Bob Dellinger, Chief of the Waste Characterization Branch at (202) 475-8551.

Sincerely yours,
Jonathan Z. Cannon
Acting Assistant Administrator

SR4 - Comments on Waste Analysis Plan

Anthony Leverock <leverock.anthony@azdeq.gov>
To: "James G. Peck" <james@jgpcon.com>

Thu, Feb 3, 2022 at 5:41 PM

James -
Attached are ADEQ's comments on the Waste Analysis Plan. ADEQ requests a response by not later than 2/18/22.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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 **SR4 - Comments on Waste Analysis Plan.pdf**
117K

SR4 – Comments On Waste Analysis Plan (Att C)

1. Section 1.1
 - a. 3rd line: the word “Considerations” does not appear to fit and should be deleted.
 - b. Last line: replace the comma at the end of the sentence with a period.
2. Section 2.2, 6th line: delete “SQG” after the phrase “Very Small Quantity Generator.”
3. Section 2.4, 2nd paragraph: the citation for threshold quantities is 29 CFR 1910.119.
4. Section 2.5: the citation for HAZWOPER training is 29 CFR 1910.120.
5. Section 3.2, item 7: lithium-ion (LION) batteries are listed as unacceptable, but the Facility plans to accept universal waste, which may include LION batteries. It could be very difficult to keep all sizes of LION batteries out of the incoming waste, and AAS must be able to properly manage this waste stream, including conducting waste analysis when appropriate. Include provisions for the analysis of LION batteries.
6. Section 4.1: Any analytical analyses supplied by the generator and relied up for waste profiling or acceptance must be performed by a laboratory licensed by ADHS for the test methods performed.
7. Section 4.1, paragraph 2: Clarify which “Facility personnel” will be authorized to review and approve Waste Profile Forms.
8. Section 4.1, last paragraph: the change requested in Comment #7 from the WAP comments from ADEQ dated April 2020 does not appear to have been made. Modify the text as requested or propose alternative language.
9. Section 4.2, 2nd paragraph: is the term “pre-submittal” the same as “pre-acceptance”? Use consistent terminology.
10. Section 4.3, last paragraph: the change requested in Comment #8a from the WAP comments from ADEQ dated April 2020 does not appear to have been made. Modify the text as requested or propose alternative language.
11. Section 4.4, 3rd paragraph: add clarification as to where the “non-conformance criteria” can be found in the WAP, such as a reference to a Table or other section.
12. Section 4.4, last paragraph: the first sentence of the paragraph “The waste will be sent back to the generator or until a new waste profile is approved” does make sense. Modify as appropriate.
13. Section 4.4, last paragraph, last sentence: this statement about assigning a new waste profile number is repeated from the beginning of Section 4.4. This can be deleted.
14. Section 5.0, first sentence: change to “...evaluating **an** incoming waste shipments **once** it arrives....”

15. Section 5.0, last paragraph: when the waste is onsite awaiting acceptance, it is in control of the Facility and must be managed as such, remaining in a secure, designated area. Make this clear and consistent with other references to incoming waste in the WAP.
16. Section 5.1, 1st paragraph: clarify the meaning of “appropriate target or split check parameters” with reference to a Table, list, or other terminology already established in the WAP.
17. Section 5.1: clarify who at the Facility performs the fingerprint analysis and decides that supplemental analysis is needed.
18. Section 5.1, 3rd paragraph: the visual screening can only indicate the presence of free liquids, and not the percent solid/liquid range.
19. Section 5.2, last list item: this item states that “containers labeled with contents” will not typically be sampled. Every container received at the Facility must be labeled with the contents or managed as not conforming to the profile and manifest. Labeled containers are not exempt from incoming level I/II analysis. Clarify.
20. Section 6.1: Are Level I and fingerprint analysis the same? This is unclear.
21. Section 6.1.2, 2nd paragraph: the text states that the “sample will be screened for some or all of the following parameters....” This should be referenced to the specific list provided in a Table to maintain consistency of the description of incoming testing.
22. Section 6.1.2, 3rd paragraph: clarify how “additional confirmation analysis” fits into the existing descriptions of Level I/II analyses, with reference to a Table if appropriate.
23. Section 6.2: the paragraph beginning “the capabilities of the Facility’s on-site laboratory could increase in the future....” is not necessary at this time. ADEQ can review any change to the WAP, including on-site laboratory procedures and capabilities, in a permit modification when specific plans and procedures are ready to be presented.
24. Section 6.2, last paragraph: this is the first use of the term “pre-screened.” Is this the same as fingerprinting or pre-acceptance? It will be more clear to use consistent terminology throughout the WAP.
25. Section 6.3, Item 2: This is not responsive to the previous WAP comment 17b (April 2020). Incoming waste should be managed under the quarantine procedures and not left on the transport vehicle for an undetermined period of time.
26. Section 9.3, 1st sentence: there is a statement about using “surgical latex gloves” during sampling. Modify this to state that nitrile gloves are typically considered to be appropriate PPE for a sampling event.
27. Table 2: is “Initial” in the middle column the same as fingerprinting? Clarify with consistent terminology.

SR5 - Air Emissions Plans (Emissions Standards and Equipment Leaks)

Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Feb 3, 2022 at 5:46 PM

To: "James G. Peck" <james@jgpcon.com>

Cc: Charles Templer <chuck@sydcol.com>, Jessica Kohls <kohls.jessica@azdeq.gov>

James -

Attached are ADEQ's comments on the Air Emissions Standards Plan (Att O, Att CC) and on the Equipment Leaks Plan (Att N, Subpart BB).

ADEQ requests a response by 2/18/22.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

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219K

SR5 – Comments on Emission Standards Plan (Att O; Subpart CC)

1. Section 2.1: This section states that the generator will be required to designate on the Waste Profile if the waste is subject to Subpart CC. That requirement needs to be added to the Waste Analysis Plan and shown on the example Profile.

2. Section 2.1 The Subpart CC compliance plan does not specify what is meant by light material service according to the regulations. This table or a similar one is recommended to be added to Section 2.0 to clarify the container Level1/Level 2 requirements:

| <i>Container design capacity¹</i> | <i>Container in light material service?²</i> | <i>Subpart CC level of control</i> |
|---|---|------------------------------------|
| $\leq 0.1 \text{ m}^3$ (26 gal) | Exempt from Subpart CC | |
| $> 0.1 \text{ m}^3$ and $\leq 0.46 \text{ m}^3$ | | Level 1 |
| $> 0.46 \text{ m}^3$ | No | Level 1 |
| | Yes | Level 2 |

¹Basis is design capacity, not fill level, of the container. The Subpart CC regulations specific capacities in m³; any reference to gallons is approximate.

²As defined in 40 CFR 265.1081, “in light material service” means the container is used to manage a material for which BOTH of the following conditions apply: (1) The vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (kPa) at 20°C; AND (2) the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight.

Source: Adapted from EPA/530/F-98/011, July 1998

3. Section 2.1, last paragraph: This paragraph does not include the requirements of 40 CFR Part 1086(c)(2) as it applies to containers addressed in 1086(c)(1)(ii). Add the requirement for the cover to be composed of suitable materials to minimize exposure of the waste to the atmosphere and to maintain equipment integrity.

4. Section 4, 1st paragraph: clarify that the requirement for the waste is to contain over 500 ppm by weight (ppmw) VOC.

5. Appendix A: Column 8 refers to “OVA reading” which is inconsistent with the PID described in Section 5.

6. Section 5.2, item 8: Clarify that the dates for beginning and completing repair should be noted in the “comments” column of the Log.

Comments on Equipment Leaks Plan (Att N; Subpart BB)

1. Section 2, 3rd paragraph: each piece of equipment to which Subpart BB applies shall be marked so that it can be distinguished from other equipment. This plan must include an inventory of all equipment subject to Subpart BB with a description of how it is identified in the field (identification tag number, etc.). Stationary equipment must also be identified on a site plan. The blank log (Table 1) must be filled out to meet this requirement. If Sydcol is not yet prepared to provide this level of detail, equipment can be added to Attachment N with a permit modification (Class 1 with Director Approval) prior to it being placed in service. Please review the requirements of Comment #4 from the ADEQ comments dated March 16, 2020, for specifics.

Comment 4 (Mar 16, 2020). General – 40 CFR 270.25(a) requires that the following information must be provided: a. Each equipment identification number and hazardous waste management unit identification. b. The location within the facility (e.g., identify the hazardous waste management unit on a facility plot plan). c. The type of equipment (e.g., a pump or pipeline valve). d. Percent by weight total organics in the hazardous waste stream at the equipment. e. Hazardous waste media state at the equipment (e.g., gas/vapor or liquid). f. Method of compliance with the standard (e.g., “monthly leak detection and repair” or “equipped with dual mechanical seals”).

2. Section 3.1: there is no discussion of the requirements for pumps with dual mechanical seal systems with a barrier fluid (40 CFR 264.1052(d)). It will be assumed that none will be used and the final permit will state that.
3. Section 3.1: the text does not refer to the exemptions in 40 CFR 2052(e)(1)-(3). Sydcol may wish to reference those exemptions.
4. Section 3.4: the reference to heavy liquid service should include the definition ($\leq 0.3\text{kPa}$) to ensure clarity.

SR6 - Comments on Closure Plan, Closure Cost Estimate, and Financial Assurance

James G. Peck <james@jgpcn.com>

Fri, Feb 25, 2022 at 3:26 PM

To: Anthony Leverock <leverock.anthony@azdeq.gov>

Cc: Terry Baer <baer.terry@azdeq.gov>, Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

That should be good Anthony. I am travelling today, but will return on Monday.

FYI, the "Technical Highlights" instructions was provided to me by ADEQ's VRP with regard to their requirements for establishing background concentrations on an unrelated project.

Have a great weekend.

-James

On 2022-02-25 08:44, Anthony Leverock wrote:

James -

In my email following up on your response to SR6 I didn't include a deadline for a response to our proposal, so please respond by 3/4/22.

If you want to discuss this further you can call or email me, or we can have a video chat. In addition, my Section Manager, Terry Baer is available to meet with you to discuss this further. Terry's number is 602-771-4503. Thank you.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

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On Thu, Feb 24, 2022 at 2:53 PM Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James -

A follow-up on AASydc0l's response in SR6:

Comment 7 iv

I am not familiar with the page you provided labeled "Technical Highlights for Statistical Evaluations Used to Establish a Site-Specific Background Level." Is this a page from a larger document produced by a particular program at ADEQ -- it is not a hazardous waste document, and is not referenced in the ADEQ guidance "Site Investigation Guidance Manual" dated October 2014, which is ADEQ's Substantive Policy Statement. See page 90, Section 5.2.2, the ADEQ guidance begins to discuss background sampling and it quotes and references the EPA DQO process that is addressed in the set of guidance I quoted (EPA QA/Gxxxx).

The size of the sampling set to use is based on judgment. Using 8 - 10 samples represents a low number based on the EPA guidance. Sure, it is possible to sample a few locations and get concentrations, but confidence that one is properly representing the site, despite the results of the statistical testing, increases with a bigger sample set, hence the recommendation of "25 to 30 sample points".

We can defer this item by requiring the background study within 180 days of permit issuance. Please submit the full document that the above Technical Highlights page came from.

Comment 12 - You mention the cost savings that is available in bulking. That may be correct, but remember that for the purposes of providing the FA, the implementation of the closure is assumed to be a third party, and the closure is understood to be overseen by ADEQ, else the FA would not have been called in. Further, any efficiencies in bulking you offer are likewise available to the other TSDFs, so that is not something that would be unique to AAS, and we still are looking at AASydc0l's cost estimate having a \$/gal ratio that is not in the same ballpark as the other TSDFs in AZ. I know you recognize that this issue is of special concern to ADEQ considering the costs incurred by the State in the closure of the IWU facility.

However, there is a direct way to address the heart of the issue, that \$/gallon factor. I recall that the Contingency Plan and the Hazards Prevention Plan attachment states that AAS will have a maximum facility storage capacity of not more than 756 drum equivalents, or about 41,580 gallons of hazardous waste. A permit condition can be included in the Container Module with this limit or another limit. Note that this limit was imposed on Clean Harbors Arizona so as to meet their closure cost requirements. Specifically, the facility capacity limit is specified to be 75,000 gallons, even though individually their container storage areas, with all of its areas full, totalled about 150,000 gallons. That sleight of hand increased their \$/gal to 14.8, which is double AAS projected value of 7.4 (see table below), (but less than Heritage Environmental's value of 21.0).

In the AAS permit we can set the facility capacity limit to up to 50 percent of the sum total of the areas. That would increase the AAS \$/gal to 14.8 and it would be in line with the other facilities. So, that would mean that the facility capacity limit would be half the 176,660 gallons or about 88,330 gallons. Again, this is a calculational sleight of hand, since the basis of the cost estimate of \$1,301,851 is for the full \$176,660 gallons, but the facility storage limit would be limited to 88,330 gallons, or 1606 drum equivalents. Two things are needed to do this: first, the Hazard Prevention Attachment to the Contingency Plan would reflect this value rather than the 756 drum equivalents; second, AAS' inventory tracking and reporting system would have to be able to track and report on the facility total storage to ensure that it remains below the facility capacity limit storage in the three hazardous waste storage areas. I think this is all very doable, so please advise me if AAS would be receptive to this limit.

With the exception of the above your responses to our comments on these modules are adequate.

Comparison of AAS FA Amt to CHA, SK-C, and HES

| Site | Container Storage (gallons) | CCE (\$) | \$/gallon | Notes |
|-----------------------|-----------------------------|-------------------------|-----------|---|
| Clean Harbors AZ | 75,000 | \$1,112,117 (CHA 2021) | 14.8 | No C/A - Facility-wide storage limit (containers only) |
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| A.A.Sydcol | 176,660 | \$741,663 (AAS 2021) | 4.2 | AAS Estimate |
| A.A.Sydcol | 176,660 | \$1,869,200 (ADEQ 2021) | 10.6 | ADEQ Estimate by CostPro - Includes Septic Excavation |
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Anthony Leverock

Associate Engineer
 Hazardous Waste Permits/Support Unit
 Ph: 602-771-4160



azdeq.gov

Your feedback matters to ADEQ. Visit [azdeq.gov/feedback](https://www.azdeq.gov/feedback)

On Tue, Feb 22, 2022 at 3:52 PM James G. Peck <james@jgpcn.com> wrote:

Anthony:

Attached is Sydcol's response letter to SR6 on the Closure Plan as well as the revised Closure Plan and supporting documentation.

Sincerely,

-James

On 2022-02-03 16:49, Anthony Leverock wrote:

James -

Attached are ADEQ's comments on the Closure Plan, Closure Cost Estimate, and Financial Assurance. ADEQ requests a response by not later than 2/25/22.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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SR6 - Comments on Closure Plan, Closure Cost Estimate, and Financial Assurance

Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Feb 24, 2022 at 2:53 PM

To: "James G. Peck" <james@jgpcn.com>

Cc: Terry Baer <baer.terry@azdeq.gov>, Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

James -

A follow-up on AASydcoll's response in SR6:

Comment 7 iv

I am not familiar with the page you provided labeled "Technical Highlights for Statistical Evaluations Used to Establish a Site-Specific Background Level." Is this a page from a larger document produced by a particular program at ADEQ -- it is not a hazardous waste document, and is not referenced in the ADEQ guidance "Site Investigation Guidance Manual" dated October 2014, which is ADEQ's Substantive Policy Statement. See page 90, Section 5.2.2, the ADEQ guidance begins to discuss background sampling and it quotes and references the EPA DQO process that is addressed in the set of guidance I quoted (EPA QA/Gxxxx).

The size of the sampling set to use is based on judgment. Using 8 - 10 samples represents a low number based on the EPA guidance. Sure, it is possible to sample a few locations and get concentrations, but confidence that one is properly representing the site, despite the results of the statistical testing, increases with a bigger sample set, hence the recommendation of "25 to 30 sample points".

We can defer this item by requiring the background study within 180 days of permit issuance. Please submit the full document that the above Technical Highlights page came from.

Comment 12 - You mention the cost savings that is available in bulking. That may be correct, but remember that for the purposes of providing the FA, the implementation of the closure is assumed to be a third party, and the closure is understood to be overseen by ADEQ, else the FA would not have been called in. Further, any efficiencies in bulking you offer are likewise available to the other TSDFs, so that is not something that would be unique to AAS, and we still are looking at AASydcoll's cost estimate having a \$/gal ratio that is not in the same ballpark as the other TSDFs in AZ. I know you recognize that this issue is of special concern to ADEQ considering the costs incurred by the State in the closure of the IWU facility.

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| A.A.Sydcol | 176,660 | \$1,301,851 | (AAS 2022) | 7.4 | AAS Estimate revised in SR6 response |

[Quoted text hidden]

[Quoted text hidden]

Comments on Closure Plan and FA – Permit
Attachment I

1. Section 1.1, Para 1: “This Closure Plan (Plan) to assess closure costs at the AA Sydcoll, LLC Facility has been prepared to address closure requirements applicable to a hazardous waste transfer facility detailed in 40 CFR 264, Subpart G and financial assurance requirements detailed in 40 CFR, 264, Subpart H,…” Change to: “This Closure Plan (Plan) has been prepared to address closure requirements applicable to the AA Sydcoll LLC Facility (Facility), detailed in 40 CFR 264, Subpart G and the financial assurance requirements detailed in 40 CFR, 264, Subpart H,…”.
2. Section 3.7 Closure Certification –
 - a. Include verbiage that the certification for closure will be in accordance with the certifications in Appendix D (new attachment to the Closure Plan providing standard forms for owner and project engineer partial and final closure certifications, attached).
 - b. The section should describe the contents of the closure report in more detail. The closure report shall generally follow EPA’s guidance for reports (attached). Also, specify the contents of the closure report. Here are our suggestions for contents:
 - i) Cover with Engineer’s Seal affixed,
 - ii) Table of Contents, with Engineer’s Seal affixed,
 - iii) Executive Summary,
 - iv) Deviations from the approved closure plan,
 - v) Closure procedures that were followed,
 - vi) Results and conclusions,
 - vii) Appendix
 - viii) Owner/operator and engineer certification statements
 - ix) Figures showing the facility and where closure of hazardous waste management units occurred. If remediation was necessary, other figures may be included showing the areas impacted by the remediation, including zones of the remediation, the support zone, areas where equipment decontamination occurred, access roads for haul trucks, location of the decontamination station of wheels and tires, wheel wells, and vehicle undercarriage, and locations where degraded soil piles were placed and imported soil piles were placed.
 - x) Laboratory Analytical Reports, including analyses of unknown wastes at the site, of soils from site investigation, of confirmation soils, analyses of rinsates, concrete cores, wipe samples of equipment, and of any imported soils used to fill excavations,
 - xi) Manifests and bills of lading generated during closure
 - xii) Photographs of closure with a photo log
3. Section 4.0 CLOSURE SAMPLING AND ANALYSIS PLAN
 - a. Provide and reference a diagram of each HWMU showing the locations of the samples to be taken, (consistent with Table 3), color-coded or shaded, indicating the initial depth of the samples. The precise locations may be changed in the closure plan in a minor permit modification, but it is helpful to have them identified now to properly inform future operators and ADEQ staff;
 - i) For loading bays at SWMU1, show that samples are taken of soils below the concrete at each loading bay;
 - ii) Also for SWMU1, show the samples are taken in soils under the conduit from the building to the septic tank and in soils in the vicinity surrounding the septic tank).
4. Section 4.2, Inspection of Exposed Soil Areas page 12, Para 3
 - a. “A PID instrument will be used to screen shallow soils for VOC contamination. Ambient concentrations of VOCs will be determined using a calibrated PID in ambient air at a

- location upwind of the Facility and recorded. Any exposed soils designated for further investigation will be first screened for organic compounds using a PID and the total VOC above background content.” Using a PID as an investigative tool for further sampling is a useful tool, but this section is too vague about the PID use. The Closure Plan needs to include an SOP in the Closure Plan’s appendix that discusses use of the PID, the instrument used, the lamp used, the procedure for screening for VOCs at sampling locations, and the calibration methods of the instrument, including which calibration gas is used – please be aware that n-Hexane gas at 10,000 ppm may not be available. Second, using the PID instrument to measure VOC concentrations in ambient air upwind of the site will not likely provide valuable information as the wind speed and direction changes – a PID is generally more useful in enclosed spaces.
- b. “A screening threshold of 100 ppm VOC content above background will be indicative of soil contamination in determining the depth of soil samples subject to laboratory analysis consistent with this CSAP.” Clarify the value of the 100 ppm screening level. Yes, that is a low reading, but because a PID is not an instrument capable of identifying specific constituents, a constituent such as benzene may very well be present at low levels in the soil, but may not cause the PID to register 100 ppm of VOC in the vapors above the soil. Therefore, update this section to clarify that a reading of 100 would be indicative of contamination, but a reading of below 100 would not be indicative of no contamination for determining the depth of soil samples subject to laboratory analysis consistent with this CSAP.
5. Section 4.3 Stormwater Basin and Septic Line Samples – Reference the figure that shows the location of the samples to be taken.
 6. Section 4.4 Sampling Methodology, page 14, -
 - a. This section references the PID screening level, presumably the 100 ppm level specified earlier, and referenced in Comment 4, above. Again, we point out that the PID instrument is not capable of identifying specific constituents, so a 100 ppm level as a screen may or may not be useful. In this section, include the caveat previously identified in comment 4.
 - b. Para 1: This paragraph appears to be proposing that the RSRLs will be used as the screening levels for meeting the closure performance standard (NRSRLs) for onsite soils. Expand this section to state that further samples will be proposed and submitted to ADEQ if analytical results for soils are greater than RSRLs and any applicable GPLs developed for the site.
 - c. The section clarifies that samples may be proposed at deeper depths, but the section should also describe how step out sampling will be done when contaminants are found above the screening levels or above the GPLs.
 7. Section 4.5 Analytical Methods
 - a. Page 16 – “Sixteen background samples will be collected at 8 locations depicted in Figure 2.”
 - i) Clarify why discussion of background samples included in a section regarding Analytical Methods? Consider moving this to a more appropriate location of the closure plan.
 - ii) The background samples are not shown on Figure 2.
 - iii) How are these eight locations related to the “ten background locations” and the “20 background soil samples” specified in Section 4.0, paragraph 3?
 - iv) Justify the initial sampling size of eight samples for a proper statistical analysis of each soil regime – typically a sample size of 30 is expected for meeting statistical criteria. This section states that additional samples will be collected if “distributional assumptions necessary to establish a UCL or tolerance interval are not satisfied.” This is not clear. The initial sample size proposed should be as specified in most

guidance, namely 30, and then the tests for normality be run. An inadequate justification would likely invalidate the statistical methods proposed in Section 4.5, and this may be deleted by ADEQ prior to approval. This section references an EPA Guidance. If these procedures are provided in the Guidance EPA QA/G-9S, February 2006, please provide the page number.

- v) In identifying the background locations ensure that the identification considers factors to minimize contamination by site activity at the facility as well as by site drainage.
 - vi) "Soil samples will be analyzed for total concentrations for each of 12 heavy metals." Identify the heavy metals that will be compared. Also state that if contaminants are found above cleanup levels, samples will be analyzed for underlying hazardous constituents.
 - vii) ADEQ suggests that the background assessment can be done prior to hazardous waste operations, especially since it appears to be a significant component of the closure plan. In order to meet the closure timeframe of 180 days, ADEQ may require as a permit condition for AAS to perform its background soil investigation of heavy metals as a schedule of compliance permit condition. The closure plan would be updated to include the presumed background concentrations of the heavy metals in soils.
8. Section 4.7 – Data Analysis –
- a. Either in this Section or elsewhere reference a Quality Assurance Project Plan (QAPP) to be used for Closure. Include the QAPP in the Appendix.
 - b. "Statistical analysis of soil sample results will be prepared and submitted with the report." Clarify this sentence. Is this referring to statistical analysis of soil sample results relative to background concentrations? A great deal of text is spent discussing a comparison to a statistically-calculated background level. However, this is applicable to heavy metals only, no background analysis will be done for VOCs and SVOCs, so update this section to also focus on data analysis for VOCs and SVOC, including the pesticides.
9. Section 4.8 – Additional Sampling – State that if additional samples are required due to any unexpected event, such as discovery of contamination or discovery of a release to the environment, the closure plan will be modified and such modification will be submitted to ADEQ for approval.
10. Section 5.1 – Closure Cost Estimate - Paragraph 3 references RS Means, 2020. Clarify if this is the copy of the spreadsheets provided in the appendix to the closure plan.
11. Section 5.2 – Financial Assurance Mechanism for Closure –
- The section notes that an insurance policy will be provided to ADEQ, per 40 CFR 264.143(e). ADEQ agrees that the full policy must be provided. However, the rules require either a certificate of insurance, with verbiage as identified in the rules, or an endorsement, with verbiage as specified in the rules, also be provided. These are required even if ADEQ requests the full policy.
12. Section 5.2 – Financial Assurance Mechanism for Closure –
- ADEQ notes that the cost estimate prepared to accompany the closure plan is very low, relative to other hazardous waste management facilities in Arizona that only store containers. Specifically, a comparison to Safety-Kleen Chandler, Clean Harbors Arizona (containers only), and Heritage Environmental Services (not including the bulk loading area – BLA), which uses rail cars) was done, and is attached. The comparison was done by dividing the CCE for each facility by the total quantity of storage allowed in their

permits. AAS's \$/gal was about one-half of the next lowest TSDf. The CCE prepared by AAS is low in a number of areas, including transportation costs, and treatment and disposal costs, and it doesn't include sufficient costs for unexpected events such as the need to conduct further site investigation due to historic releases. ADEQ has prepared a closure cost estimate for the three units in AAS' permit application, including such site investigations, as well as investigation of the septic system at the SWMU. The CCE was prepared using EPA's Cost Pro software. The Cost Pro software's library of unit costs has not been updated since 2012, so ADEQ used an inflation factor to generally update the costs to the end of 2021. The cost estimate amount calculated using a third party to conduct the closure is 1,869,200. AAS must use this CCE as the basis for the FA required for the facility, and ADEQ will include a permit condition in the permit that requires this amount to be used for the insurance policy.

13. Appendix B – It is not clear what the date of the reference for costs is. Please provide a more clear copy and show when it was published.
14. Appendix C – This shows an ACORD. Include the Certificate of Liability Insurance required by 40 CFR 264.147. In addition, ADEQ requests a copy of the liability policy including endorsements and any riders.

Report Formatting and Presentation Guidelines¹ - Draft Final

EPA Evaluation Support Division

Avoid unnecessary revisions by adhering to the following guidelines.

These guidelines follow the EPA *Policy and Implementation Guide for Communications Product Development and Approval* (available online at <http://www.epa.gov/productreview/guide/app3.html>), but also address issues unique to EPA program evaluation reports. Other than the exceptions outlined here, EPA follows the widely available *Associated Press Stylebook*.

1. Organization: IMRAD Format

Reports should generally be in IMRAD format: Introduction, Methods, Results, and Discussion/Conclusion. Do not combine sections (e.g., Results and Discussion) or mix, for example, results with methods. A Conclusion section following the Discussion is preferred, but should not repeat material that has been covered previously. Use outline formatting, in which major sections are numbered and then divided into subsections labeled with letters or numbers, to distinguish between sections of the manuscript.

Title Page

Title

A product may not reach its audience if the title is not to the point and does not include the pertinent vocabulary.

- Aim for a clear, concise, and informative title that specifies what is evaluated.
- Avoid titles that are complete sentences (including interrogative titles).
- Hanging titles (those with a colon) are overused and sometimes use more words than necessary.
- For clarity, consistency, and for indexing purposes, titles should be restricted to two levels: one main title followed, if required, by one sub-title.
- The division between the main title and the subtitle is indicated by spacing down one-half line and shifting to a lighter weight (and sometimes a smaller size) of the same typeface.

¹ These guidelines draw upon those developed for the peer-reviewed journal *Conservation Biology* (<http://www.conservationbiology.org/SCB/Publications/ConsBio/Instructions/Style.cfm>) and upon the Evaluation Report Checklist developed by Gary Miron for The Evaluation Center at Western Michigan University (<http://www.wmich.edu/evalctr/checklists/>).

- For purposes of clarity and easy reference, one of the key words in the title should appear at the beginning or as near it as feasible. Use vague phrases like "Report To Congress" and "Guide To Federal Activities" in subtitles (not the main title).

Other title page items

- Clearly identify authors -- name and affiliation
- Include date of preparation
- Identify name of client(s) or funder(s)

Tables of Contents

- List first and second level headings and corresponding page numbers
- Include lists of tables, figures, and appendices
- Include lists of acronyms and abbreviations

Acknowledgments

- Acknowledge sponsors, data collectors, informants, contributors to the report, research assistants, reviewers of the report, etc.

Executive Summary

An executive summary is a miniature version of your paper: 1-2 pages of introduction, methods, results, and discussion/conclusion. Content within each of these areas should briefly summarize a corresponding section in the report. Length should not generally exceed 10 pages. The executive summary should not contain literature citations, much data, or meaningless clauses such as “We discuss results...” or “We summarize implications...”

References and explanatory notes should be used sparingly in executive summaries. Endnotes should be used when citing references or supporting material in this section.

Introduction

The introduction provides the reader with context for the rest of the report. Accordingly, the introduction should:

- Describe the evaluation’s purpose and research questions (if not covered in methods section)
- Describe the program/project being evaluated (inc. goals, historical context, and logic model, if appropriate) and rationale for evaluation.
 - This is an appropriate place to include organization mission statements.
 - Use the logic model to explain the scope of the program—areas of direct influence and areas of indirect influence and how the evaluation questions were developed based on the logic model.
- Identify target population for the program/project
- Identify relevant audiences and stakeholders for the evaluation
- Review related research
- Describe the report’s organizational structure (i.e., intro, methods, results, etc.)

Methods

The methods section provides the reader with an understanding of how the evaluation was conducted. This section should provide sufficient detail to permit a reader to replicate the study and its findings by retracing the author's steps.

The methods section should:

- Define the evaluation's purpose and research questions (if not covered in intro)
- Describe the evaluation approach and the rationale for this approach
- Describe the evaluation design, including data collection methods, sample sizes and timing of data collection
 - *note:* actual instruments should be included in an appendix to the final report
- Identify sources of information and data
- Outline limitations of the evaluation (e.g., limitations related to methods, data sources, potential sources of bias, etc.)
- Describe the audience for the report, how the findings can be used by the audience, and how publicly available the document will be. (These are required by EPA Quality Assurance Plans.)

Results

The results section describes the evaluation's findings for the reader. The results section should:

- Address all evaluation questions
 - Include direct explanations regarding questions that could not be answered
- Describe details of evaluation findings clearly, logically, and objectively
 - Include both positive and negative findings
- Label charts, tables, and graphs consistently, appropriately, and clearly (**see Section 4, Supporting Elements, for additional guidelines**)
- Summarize findings (in each results chapter or altogether in a summary chapter, as appropriate)

The results section should not include recommendations, unless they are qualitative data from an interviewee. Recommendations generally belong in the discussion/conclusion.

Discussion/Conclusions

The discussion and conclusions section provides the reader with the evaluator's interpretation of the evaluation results and their implications (i.e., answer the "so what?" question). This section (or sections) should:

- Discuss the implication of the evaluation results for EPA and relevant stakeholders
- Include recommendations for program improvement

Quality Assurance Plans

All EPA ESD evaluations should include a "Quality Assurance Plan" in an Appendix. This Plan should include the title of the evaluation; a brief synthesis of the Methods section that covers each of section components; the name of the organization sponsoring the evaluation; the name of the EPA project leader; the name of the EPA quality manager; and the date that the plan was developed (not the date the report was completed). A short statement should also be included that indicates why the data – in spite of possible limitations – are suitable for the purposes laid

out in the report. One page should generally be sufficient for this section. The QAP should refer the reader to the Methods section for further details.

2. References

In-text citations

- In most cases, enclose citations in text in **parentheses**. For example: “Human-modified habitats that look suitable but provide poor reproductive rewards are called ecological traps (Gates and Gysel 1978).” Instead of “According to Gates and Gysel (1978), human modified habitats...”
- Use *and* between two author surnames (Gates and Gysel 1978)
- For citations with more than two authors, use et al. (Hatchwell et al. 1996). Do not italicize et al.
- List parenthetical citations chronologically and separate entries with a semicolon (Zorenstein et al. 1991; Waddell and Fretwell 2001).
- Multiple sources by the same author: (Cox et al. 1991, 1992; Chapman 2001, 2002)
- *In press* documents: (*In press* means the source being cited has been officially accepted for publication). Provide the year the source will be published in the text and in the References cited use *in press* (...in landscapes. Conservation Biology 17: in press).
- Manuscripts in review: These journal articles, reports, etc., must be cited as unpublished until the paper has been officially accepted and should not appear in the References cited.
- Unpublished data: Use (R. Fowler, unpublished data; M. E. Soulé, personal communication).
- Avoid “in. lit.” citations. Provide the original citations whenever possible. For example, (Jones 1995), instead of (Jones 1995, referenced in Smith 2000).
- Make sure all references cited in text are listed in References cited and vice versa.

“References Cited” section

- Spell out all journal titles in full. Titles are italicized.
- Capitalize only the first word, proper nouns, and other words that would normally be capitalized in a sentence. Do not capitalize the first letter of each word or all letters.
- "Submitted" papers and personal communications should not be in the References Cited; cite as unpublished data in the text (include full reference in parentheses in the text).
- Remove "Inc.," "Co.," etc. from reference in text and Lit. Cited: (SAS Institute 1998) not (SAS Institute, Inc. 1998).
- Conference proceedings and conference abstracts can be cited in References cited only if they have a “publisher” and the location of said publisher can be provided. If not formally published, the publisher is the organization from which a copy can be obtained.

Sample citations

- **Institutions as authors:** Spell out name of the institution and include location of publisher.
Example:
 - World Wildlife Fund (WWF). 2002. *Giant panda home ranges*. Washington, D.C.: WWF. *or*

- WWF (World Wildlife Fund). 2002. *Giant panda home ranges*. Washington, D.C.: WWF.

The initial citation in the *References Cited* section needs to match the text citation: WWF vs. World Wildlife Fund.

- **Journal articles:** Christensen, N. D., and J. Eu. 2003. Ecology of cranberry bogs: a case study. *Ecology* 59:1147–1167, 1178–1187. For a supplement citation: ...13(supplement 1):172–180. If a paper is in press, the “in press” follows the journal title (i.e., *Ecology*: in press.).
- **Edited books:** Cran, B., C. Boy, and L. Shi. 1911. Native forest birds of Guam. Pages 4-8 in T. Wu and L. Lee, editors. *Flora and fauna of Guam*. Ace, Ohio: Tell Books.
- **Reports:** Barnes, J., and S. Craig. 2003. *Conservation status of riparian areas in southeastern Oregon*. General technical report N-24. Portland, Oregon: U.S. Fish and Wildlife Service.
- **Internet citations:** Include the name of the sponsoring organization and their physical location. Example: Carne, A. 2003. *The art of leaving well enough alone*. Washington, D.C.: National Science Teachers Association. Available from <http://www.nsta.org/art2/scienceandchildren> (accessed March 2002).

3. Supporting Elements (Tables, Figures, Appendices)

Number of elements

Strive for a ratio of no more than one supporting element to every four pages of text (text includes References cited). Publication of raw data, even in an appendix, is usually not vital to the results and conclusions of a study. Do not put more than one supporting element on a page.

Exhibits

ESD documents should not include any supporting elements referred to as “Exhibits.” All supporting elements should be labeled as Tables, Figures, or Appendices.

Appendices

We encourage the use of appendices as a means to archive supplementary materials. As noted above, it is generally not necessary to include raw data in the appendix to an evaluation.

Content

Tables and figures should be self-explanatory and should supplement (not duplicate) the text. A reader should be able to interpret tables and figures without referring to the text. This means all abbreviations and terms unique to the document must be defined. Common statistical notations do not need to be defined. Use the same terminology in supporting elements as you did in the text.

Referencing a supporting element in the text

- Provide a summary or generalization of data and cite supporting elements parenthetically.
 - *Incorrect:* Perception and tolerance indices are shown in Fig. 2.
 - *Correct:* Cheetahs were increasingly perceived as a problem on farms, but the level of tolerance for them did not decrease (Fig. 2).

- Spell out the word *figure* only at the beginning of a sentence; otherwise, abbreviate (e.g., Fig. 1).

Tables

- Legends need to be informative within one sentence. A list of column or row headings is not informative or sufficient. Use the legend and footnotes to fully inform readers.
- Define abbreviations (in footnote) even if they are already defined in text.
- If there is only one footnote, use an asterisk (*). If there is more than one footnote, use letters (^a, ^b, ^c).
- Bold type is not allowed in tables.
- Do not use grid lines on tables.
- If you have more than one table with the same data provided for, say, different states, combine the tables if you can. To set entries within a column apart from each other use indentation.
- Unless an entry is a complete sentence capitalize only the first word of the first entry in a row (exception is proper nouns) and do not use periods.
- Do not split tables into separate parts (e.g., Table 1a and Table 1b). Make separate tables or combine data under the same columns or rows.

Table Example

Table 1. Logistic-regression models built with....^a

| Variable | Symbol | <i>p</i> | df |
|----------------------------|--------|----------|----|
| General model ^b | f_g | 0.0015 | 3 |
| landscape ruggedness | rug | 0.0113 | |
| forest cover (%) | bosque | 0.0085 | |
| Human model | | | |
| human population | pob1 | | |
| | | | |

^aSignificance level of coefficients....

^bNext most parsimonious models at...

Figures - Refer to the style guidelines below for graphs and maps.

Graphs

- Do not use top and right-hand axis lines if they do not have units associated with them.
- Do not enclose graphs in a square.
- Label all axes and include units of measure in the label: e.g., Number of species/km².
- Note use of upper and lowercase letters in above Table example.
- Use a key instead of describing shading or shapes in the legend.
- Match typeface and type size among figures.

- Make sure axis labels and units are not out of proportion (e.g., very large axis label and very small numbers along the axis).
- If a figure has more than one part that needs to be specifically identified, use lowercase letters. Make sure if the figure has letter labels they are used or referred to in the legend.
- If identifiers to be placed along the x-axis are long, slant them for easier reading (no vertical orientation).
- Significant figures along an axis need to match, i.e., 1.0, 2.5, 2.0 (not 1, 2.5, 2).
- The label for the y-axis should run vertically to the left of the numbers, and numbers should be horizontally oriented.
- Labels along both axis lines should be centered.

Maps

- Maps must have a scale.
- Make sure shadings can be differentiated.

4. **Scientific names (not "Latin names")**

- Scientific names: In the Executive Summary and at first mention in the text, use common name followed by scientific name (genus and species) in parentheses. For example: cane toad (*Bufo marinus*).
- Organisms: *Clarkia springvillensis* (first use); *C. springvillensis* (thereafter, even starting sentence); *Clarkia* spp. or sp. or var. (rom.).
- Common names: all lower case (creeping thistle, tiger), except where proper noun (e.g., Siberian tiger).

5. **Numbers and Statistical Elements**

- longitude and latitude (148°N, 78°W) (no periods)
- Degrees: use symbols.
- Spell out whole numbers below 10, but use figures for 10 and above. *Exceptions:*
 - a 5-year-old girl, 3 percent, 6 cents;
 - A number at the beginning of a sentence should be spelled out (e.g., “Twelve program offices and all 10 Regional offices think...”).
- Fractions may be spelled out (one-half, one-third) unless used with units of measure (0.5 mm or 0.5 years).
- When less than one, use 0 before decimal point.
- Numbered lists: (1)...; (2)...; and (3)...
- Put a space between numbers and the unit of measure (6 m, 14 mL)
- *p*, probability; df, degrees of freedom; SE, standard error; SD, standard deviation, χ^2 , chi square

7. Miscellaneous Style Points

- **Regions.** Many readers don't know what "Region 1," "Region 2," etc. mean, so explicitly list states when referring to an EPA Region for the first time. For example, "Region 5 (IL, IN, MI, MN, OH, WI)." Use regional descriptions if appropriate (e.g., "EPA New England"). Also, use "EPA regional offices" instead of "EPA regions."
- **Model variables**
 - Whole words used as a model variable are lowercase (e.g., species). Multiple-letter abbreviations that are not complete words are all capital letters
 - *Acceptable*: DEM for digital elevation model;
 - *Unacceptable*: PATCH for patch area.
 - Italicize all single-letter variables in equations, except for Greek letters. Variables of more than one letter are not italicized (e.g., RU, meaning reproductive units as opposed to *RU*, in which *R* and *U* are separate interacting terms).
 - Define every variable used in equations.
- **Computer applications.** Initial cap only (i.e., Partition, ArcInfo) if the name of the program is a word. If the name is not a word, use all caps: SAS.
- **Footnotes.** Avoid footnotes in text unless footnoted material is lengthy (more than 2-3 lines long). Use parentheses instead.
- No trademark symbols
- Include two spaces after a period and at least one line between paragraphs.
- To conserve paper, avoid excessive white space.

8. Writing Style

Clarity is everything

Our audience is the general environmental professional, so clarity in language and syntax is important. For reports and other written products, informal language is not acceptable. In addition, “literary devices, metaphors and the like, divert attention from the substance to the style [and]...should be used rarely” (Day 1998).

Plain language

As with all federal agencies and departments, EPA must use plain language in its communications. Because EPA evaluations and other written products have diverse audiences, it is particularly important for authors of ESD products to **avoid use of jargon**. (Additional guidance is available from the General Services Administration's Language Network on the Internet at www.plainlanguage.gov.)

Voice

- Use active voice most of the time. Avoid passive voice, where the object seems to be the subject and the true subject is hidden or missing. For example, "mistakes were made." By whom? Sentences in the passive voice are perfect if you are trying to hide something or escape responsibility. Sentences in the active voice are strong, clear, simple and credible.
- To avoid passive voice, use "we", "I", or the name of the organization doing the activity. For example:
 - "EPA will issue a proposed cleanup plan this summer.," not "A cleanup plan will be issued this summer."
 - "EPA experts surveyed the plots.," not "The plots were surveyed by EPA experts."
 - "We converted all GIS data to raster format.," not "All GIS data were converted to raster format."
- In particular, the methods section should not be written entirely in passive voice.

Tense

- Past tense: use it in the methods (telling what you did) and results (telling what your results were) sections.
- Present tense: use it when you refer to previously published findings.

In general, most of the **executive summary**, **methods**, and **results** should be in past tense, and most of the **introduction** and **discussion** should be in present tense.

Abbreviations, acronyms, and initializations

- Do not begin a sentence with an abbreviation.
- Do not fill the evaluation with abbreviations and acronyms. Overuse of these devices makes reading and comprehension difficult. A handful of abbreviations for terms particular to your paper or topic used throughout is acceptable, but many more is questionable. It may be time consuming to type these words out, but keep the reader in mind.
- Avoid acronyms except for those widely understood by the general public.
 - EPA is acceptable, and so are other common acronyms like PCBs and CFCs.
 - Acronyms such as ARARA, DNAPLES, RI/FS, NPDES and ROD are generally not acceptable. Avoid these when possible, even if they have been previously referenced. A small number of acronyms may be appropriate, however, if they are central to the report. For example, it would be acceptable to use the acronym "NPDES" in an evaluation of the National Point Discharge Elimination System program.
- Define all abbreviations, initializations, and acronyms at first use, e.g., analysis of variance (ANOVA), World Conservation Union (IUCN).

- Always spell out "United States" when it appears as a noun. As a modifier, "U.S." is acceptable (but not in the Agency's name on covers or title pages).
- Always use the two-letter postal code abbreviations when abbreviating state names. No periods: "NY," not "N.Y." Note, however, that abbreviation is only appropriate in long lists and addresses.
- "Southwest" is one word; it is abbreviated "SW." Ditto for all compass points.
- "EPA" is a proper noun; it should be used by itself without "the" in front. For example, a sentence should begin "*EPA will ...*" instead of "*The EPA will ...*"

Gender Bias

Use gender-neutral words. Consult sources like the U.S. Labor Department's Dictionary of Occupational Titles or Rosalie Maggio's book *Nonsexist Word Finder*. Web-based guidance on plain language writing is available at: <http://www.plainlanguage.gov>.

9. Grammatical Bugaboos

Capitalization and Spelling

| | |
|--|---|
| <i>Agency</i> | capitalized when "the Agency" refers specifically to EPA, as opposed to a generic organization. |
| <i>online, webmaster</i> | each is only one word; neither is capitalized or hyphenated. |
| <i>section, article</i> | not capitalized, even when referring to one part of a law or regulation. |
| <i>state, federal, regional, local, tribal</i> | not capitalized unless they begin a sentence or form part of an official title. |
| <i>Title</i> | capitalized when referring to a part of a law or regulation; not capitalized otherwise. |
| <i>Web</i> | capitalized when it refers to the World Wide Web, as in "Web site." |

Using (the word)

In scientific writing, the word *using* is often the culprit in dangling participles and misplaced modifiers.

- Misplaced modifier: Ivory samples were taken from tusks using a 16-mm drill bit on a 40-cm drill. This reads as if the tusks used the drill. Keep related words together and in the order that conveys the intended meaning (and use active voice).

- Dangling participle: Using tissue isolation protocol, mtDNA was isolated from dried skins. In this sentence it is unclear who is doing the using; it has no actor and reads as if mtDNA is doing the using.
- The verb *utilize* should NOT be employed; *use* should be employed instead.
- Commas are not needed with short introductory phrases, unless meaning is unclear without.

Multiple modifiers

Too many modifiers: Do not pile up multiple adjectives (or nouns-turned-adjectives) in front of a noun (difficult to follow: “infected bird populations responses”; better: “responses of infected bird populations”).

Pronouns

Be careful, in particular, with the pronouns *this*, *these*, and *it*. If you do not provide a qualifier, it is sometimes difficult to tell to what these words refer. For example:

- *Unclear*: This program offers solutions to that problem.
- *Clear*: This computer program offers solutions to the problem of incorrect number sequencing.

Ampersands (&)

Use ampersands only when they are part of a formal name (e.g., C&O Railroad) or when space is at a premium (e.g., in the left sidebar).

Commonly Misused Words

Affect/Effect

"Affect" is normally a verb. "Effect" is normally a noun. For example:

*"Acid rain **affects** trees"*

*"Acid rain's **damaging effects** include weakening trees."*

The only use of "effect" as a verb is to mean "to cause" or "to bring about" as in *"EPA will **effect** change through a new program."* **However**, it is usually better to say accomplish, perform, produce, generate, make, etc.

Cleanup

The noun is "cleanup," the verb form is "clean up," and the adjective is "clean-up." For example:

*"The **cleanup** will take six weeks"*

*"Workers will **clean up** the site in six weeks"*

*"The **clean-up** work will take six weeks."*

Dispose

To "dispose" means to arrange, incline, or set in readiness. In contrast, "to dispose of" means to get rid of something. For example:

*"The on-scene-coordinator is **disposed to** clean up the site now"*

*"The on-scene-coordinator **will dispose of** the hazardous material at an approved landfill."*

Improper use: *"EPA will **dispose** the hazardous material."*

Environment

Use "*environment*" to mean what surrounds us on the Earth's surface: air, water, trees, land, etc. In contrast, "*earth's environment*" means planets, stars, asteroids, magnetic fields, etc.

Impact

"Impact" as a verb is over-used. Use "affect" or "affected" instead. For example:

*"The contamination will **affect** a large area"* instead of *"the contamination will **impact** a large area."*

"The affected area ..." instead of *"the impacted area ..."*

May

"May" means permission exists, despite the lenience of some descriptive dictionaries. It *may not* be used as a synonym for can, might, could, or would.

Waste

The term "waste" is implicitly plural. Do not add an "s" unless you mean different types. For instance:

*"hospital **waste** comprises various dangerous items,"* but,
*"solid and liquid **wastes** must be treated differently."*

Which, That

Be careful of using "which" in place of "that." "*Which*" tells something about the subject that is not absolutely necessary:

*"The project, **which** is six weeks overdue, is still with the contractor."*

In contrast, "*that*" provides necessary definition or restriction:

*"Let's review the project **that** is six weeks overdue."* "Which" is always preceded by a comma; "that" never is.

Web

"Web" is one word and "Web site" is two words. Similarly, "Web page" is two words. Capitalize "Web" because it is short for "World Wide Web."

Bylines and Staff Credits

Printing and Binding Regulations state:

"The printing of Government employees' bylines in Government publications shall be confined to the authors of articles appearing therein, and to the photographers who have originated the pictures contained therein."

When applying this regulation, consider:

- The term "byline" refers to any name listed for credits as opposed to employee names integral to the text itself.
- The term "author" applies to an individual who has conceived of, created, or is responsible for a text or section thereof. The term "author" cannot be extended to cover supervisors, managers, advisors, staff committee or workgroup members and other such contributors, who may, however, be listed as a group or staff (but not by name), under "acknowledgments."

- It is appropriate to acknowledge other non-contractor organizations or individuals representing them (although acknowledging an organization alone typically suffices).
- In general, contract numbers can be listed, but not contractor or contractor staff names. For third-party or independent evaluations commissioned by EPA, however, the report should identify the evaluation team (contracting firm and staff names). For example:

This evaluation was performed by Evaluation Consulting, Inc., for EPA's Office of Environmental Policy Innovation and EPA Region IX under Contract 77-W-02-039 between EPA and Evaluation Consulting. The Evaluation Consulting evaluation team included Bob Smith, Peggy Jones, and Juan Ramirez. Alice Keyes of EPA Region IX and Katherine Dawes of EPA's Office of Environmental Policy Innovation played technical advisory roles.

Disclaimers

- Independent or third-party evaluations commissioned by EPA require non-EPA employees to express their own opinions. In these instances, the evaluation should include the following disclaimer:

The material in this document has been subject to Agency technical and policy review, and approved for publication as an EPA report. The views expressed by individual authors, however, are their own, and do not necessarily reflect those of the U.S. Environmental Protection Agency.

- Draft documents require the following disclaimer:

This text is a draft that has not been reviewed for technical accuracy or adherence to EPA policy; do not quote or cite.

- Documents that refer to particular companies, trade or service names, product names, or other commercial references require the following disclaimer:

Mention of trade names, products, or services does not convey official EPA approval, endorsement, or recommendation.

10. Bibliography

Day, R.A. 1998. *How to write and publish a scientific paper*. 5th edition. Westport, Connecticut: Oryx Press.

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PE and Owner Operator Certification Templates

**FACILITY CLOSURE
OWNER OR OPERATOR CERTIFICATION**

(The owner or operator must certify that the activities performed in closing the facility are in accordance with the specifications of the closure plan approved by the Arizona Department of Environmental Quality, Waste Programs Division. Accordingly, the certification will be straightforward, no matter how complex closure itself has been.[40 CFR 264.115 as adopted by A.A.C. R18-8-264.A or 40 CFR 265.115 as adopted by A.A.C. R18-8-265])

I, _____, of
Owner or Operator

Name and address of hazardous waste facility

hereby state and certify that, to the best of my knowledge and belief, the above-named hazardous waste facility has been closed in accordance with specifications of the approved closure plan, and that the closure was completed on the _____ day of _____, 20__.

Signature

Date

**PARTIAL CLOSURE
OWNER OR OPERATOR CERTIFICATION**

(The owner or operator must below certify that the activities performed in the closure of the unit(s) identified below are in accordance with the specifications of the partial closure plan approved by the Arizona Department of Environmental Quality, Waste Programs Division. Accordingly, the certification will be straightforward, no matter how complex closure itself has been.[40 CFR 264.115 as adopted by A.A.C. R18-8-264.A or 40 CFR 265.115 as adopted by A.A.C. R18-8-265])

I, _____, of
Owner or Operator

Name and address of hazardous waste facility

hereby state and certify that, to the best of my knowledge and belief, the

Hazardous Waste Treatment, Storage, or Disposal Unit(s)

has (have) been closed in accordance with specifications of the approved partial closure plan, and that the closure was completed on the _____ day of _____, 20____.

Signature

Date

PROFESSIONAL ENGINEER CLOSURE CERTIFICATION

(An independent registered professional engineer(s) must certify that the facility has been closed in accordance with the approved closure plan. The engineer is not certifying the adequacy of the activities or the plan; he is certifying only that, in his judgement, the activities performed were in accordance with the specifications in the approved plan. At final closure the professional engineer who certifies that closure has been completed may rely in part on earlier certifications of any partial closures and in part on his inspections of the facility as a whole to ensure that those partially closed areas have been maintained.[40 CFR 264.115 as adopted by A.A.C. R18-8-264.A or 40 CFR 265.115 as adopted by A.A.C. R18-8-265])

I, _____, a registered professional engineer, hereby certify that I have verified to the best of my knowledge and belief that Professional Engineer Closure Certifications were issued for all prior closure activities at

(Name and address of hazardous waste facility)

and that I have made visual inspection(s) of the aforementioned facility, and closure of the aforementioned facility has been performed in accordance with the specifications contained in the closure plan for the facility approved by the Arizona Department of Environmental Quality, Waste Programs Division.

Signature

Date

Professional Seal (Pursuant to A.R.S. §32-125)
Issued by the Arizona State Board of Technical Registration

PROFESSIONAL ENGINEER PARTIAL CLOSURE CERTIFICATION

(An independent registered professional engineer(s) must certify that the facility's hazardous waste management unit(s) has been closed in accordance with a respective approved closure plan. The engineer is not certifying the adequacy of the activities or the plan; he is certifying only that, in his judgement, the activities performed were in accordance with the specifications in the approved plan.[40 CFR 264.115 as adopted by A.A.C. R18-8-264.A or 40 CFR 265.115 as adopted by A.A.C. R18-8-265])

I, _____, a registered professional engineer, hereby certify, that I have made visual inspections(s) of the hazardous waste management unit(s) as described in the plan dated _____, and designated as

Partial Closure Plan Title

I also verify to the best of my knowledge and belief that all activities as required per the approved partial closure plan have been performed in accordance with the specifications contained in the closure plan for the facility approved by the Arizona Department of Environmental Quality, Waste Programs Division.

Signature

Date

Professional Seal (Pursuant to A.R.S. §32-125)
Issued by the Arizona State Board of Technical Registration

**AA Sydcot Waste Transfer Facility
AZR 000 520 304**

Address: 2264 East 13th Street
Yuma
ARIZONA
85365

Contact: Charles Templer
928-783-3676

Comments:

| Activity | Units | Closure Cost |
|------------------------|-------|--------------|
| Container Storage Area | 4 | \$1,579,290 |

\$1,579,290

Additional Costs \$0.00

Total Estimated Cost (2012) = **\$1,579,290**

Inflation Factor = IPD_{2021} / IPD_{2012}
2021 IPD = 118.357
2012 IPD = 100.0
IF = 1.18357

Cost Estimate = $\$1,579,289.92 \times 1.18357 = \mathbf{\$1,869,200}$

AASydcol Waste Transfer Facility
EPA ID Number AZR 000 520 304
Summary of Closure Costs

CCE 2012 Cost Pro with IF to 2021

| Item | HWMU1 | HWMU2 | HWMU3 | SWUM (septic) | Total |
|-------------------------------------|------------------|------------------|------------------|-----------------|--------------------|
| Removal of Waste | \$3,240 | \$5,923 | \$8,098 | \$0 | \$17,261 |
| Removal of Process Equipment | \$0 | \$0 | \$0 | \$0 | \$0 |
| Removal of Soil | \$3,355 | \$3,355 | \$3,355 | \$3,283 | \$13,348 |
| Backfill and Grading | \$6,264 | \$13,471 | \$11,125 | \$1,751 | \$32,611 |
| Decontamination | \$24,015 | \$38,577 | \$43,983 | \$0 | \$106,575 |
| Sampling and Analysis | \$58,588 | \$64,510 | \$58,223 | \$5,828 | \$187,150 |
| Transportation | \$29,371 | \$50,733 | \$66,753 | \$0 | \$146,857 |
| Treatment and Disposal | \$175,549 | \$304,601 | \$411,222 | \$0 | \$891,373 |
| Engineering (10%) | \$30,038 | \$48,117 | \$60,276 | \$1,086 | \$139,518 |
| Certification | \$4,201 | \$4,201 | \$4,201 | \$4,201 | \$16,805 |
| Contingency (20%) | \$66,925 | \$106,698 | \$133,447 | \$3,230 | \$310,300 |
| Cover Installation For Graded Areas | \$2,019 | \$2,019 | \$2,019 | \$1,347 | \$7,402 |
| Total | \$403,567 | \$642,204 | \$802,703 | \$20,726 | \$1,869,200 |

Container Storage Areas Summary (CS_02-1)

| | | |
|---|--------------|---|
| Removal of Waste (CS-03) | \$2,737.81 | |
| Demolition and Removal of Pads (CS-04) | \$0.00 | |
| Removal of Process Equipment (CS-05) | \$0.00 | |
| Removal of Soil (CS-06) | \$2,834.46 | |
| Backfill and Grading (BF-01) | \$5,292.62 | |
| Decontamination (DC-01) | \$20,290.34 | |
| Sampling and Analysis (SA-02) | \$49,501.47 | |
| Monitoring Well Installation (MW-01) | \$0.00 | |
| Transportation (TR-01) | \$24,816.00 | |
| Treatment and Disposal (TD-01) | \$148,321.99 | |
| User Defined Cost (UD-01) | \$0.00 | |
| Subtotal of Closure Costs | \$253,794.69 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$25,379.47 | |
| Certification of Closure (CS-07) | \$3,549.72 | |
| Subtotal | \$282,723.88 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$56,544.78 | |
| Landfill Closure (Cover Installation) (CI-02) | \$1,705.44 | |
| TOTAL COST OF CLOSURE | \$340,974.10 | |

Container Storage Areas Inventory (CS_01-1)

MAXIMUM PERMITTED CAPACITY

| | | |
|--|----------|-----|
| Volume of liquid waste | 33,000.0 | gal |
| Volume of solid waste | 0.0 | yd3 |
| Percent of loose solid debris | 0.0 | % |
| Percent of drummed solid waste | 0.0 | % |
| Percent of baled waste or other monolithic waste | 0.0 | % |
| Volume of loose solid debris | 0.0 | yd3 |
| Volume of solid waste in drums | 0.0 | yd3 |
| Volume of monolithic waste | 0.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|---------|-----|
| Length (excluding any curbs or berm) | 49.0 | ft |
| Width (excluding any curbs or berm) | 99.0 | ft |
| Surface Area of Containment System Pad | 4,851.0 | ft2 |
| Surface Area of Containment System Pad in yd2 | 539.0 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|---------|-----|
| Thickness | 1.0 | ft |
| Volume of Containment System Pad | 4,851.0 | ft3 |
| Volume of Containment System Pad in yd3 | 179.7 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-------|-----|
| Inside Perimeter | 240.0 | ft |
| Height | 0.5 | ft |
| Surface Area of Containment System Berm | 120.0 | ft2 |
| Surface Area of Containment System Berm in yd2 | 13.3 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|------|-----|
| Thickness | 0.5 | ft |
| Volume of Containment System Berm | 60.0 | ft3 |
| Volume of Containment System Berm in yd3 | 2.2 | yd3 |

SURFACE AREA OF OTHER STRUCTURES

| | | |
|---|-----|-----|
| Surface Area of Other Structures | 0.0 | ft2 |
| Surface Area of Other Structures in yd2 | 0.0 | yd2 |

VOLUME OF OTHER STRUCTURES

| | | |
|----------------------------|-----|-----|
| Volume of Other Structures | 0.0 | yd3 |
|----------------------------|-----|-----|

Facility: AA Sydcol Waste Transfer **Unit:** HWMU1
Facility

02/03/2022

VOLUME OF CONTAMINATED SOIL TO BE REMOVED

| | | |
|--|---------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Depth | 6.0 | ft |
| Volume of Contaminated Soil to be Removed | 1,350.0 | ft3 |
| Volume of Contaminated Soil to be Removed in yd3 | 50.0 | yd3 |

AREA OF SITE TO BE GRADED WITHOUT SOIL REMOVAL

| | | |
|---|-----|-----|
| Length | 0.0 | ft |
| Width | 0.0 | ft |
| Area of Site to be Graded Without Soil Removal | 0.0 | ft2 |
| Area of Site to be Graded Without Soil Removal in yd2 | 0.0 | yd2 |

Container Storage Areas Removal of Waste (CS_03-1)

REMOVAL OF LOOSE SOLID DEBRIS

| | | |
|-------------------------------------|--------|--------------------|
| Volume of loose debris waste | 0.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per yd3 | \$2.48 | per yd3 |
| Cost to Remove Loose Solid Debris | \$0.00 | |

REMOVAL OF DRUMMED WASTE

| | | |
|-------------------------------------|------------|--------------------|
| Number of Drums | 600 | Drums |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per drum | \$4.38 | |
| Cost to Remove Waste in Drums | \$2,628.00 | |

REMOVAL OF SOLID MONOLITHIC WASTE

| | | |
|-------------------------------------|---------|--------------------|
| Number of monolithic forms | 0.0 | Forms |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per form | \$17.53 | per Form |
| Cost to Remove Monolithic Waste | \$0.00 | |

DRY SWEEP STORAGE PROCESS, HANDLING AREA

| | | |
|---|------------|---------|
| Surface area to dry sweep | 4,851.0 | ft2 |
| Surface area to dry sweep in thousand square feet (MSF) | 4.9 | MSF |
| Labor and equipment cost per ft2 | \$22.41 | per MSF |
| Cost to Dry Sweep Area | \$109.81 | |
| TOTAL COST OF WASTE REMOVAL | \$2,737.81 | |

Container Storage Areas Removal of Soil (CS_06-1)

| | | |
|---|------------|--------------------|
| Volume of contaminated soil to be removed | 50.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$132.59 | |
| Work rate required to remove one yd3 | 0.0300 | Work hr per yd3 |
| Number of hours required to remove soil | 1.5 | Work hrs |
| Subtotal of labor and equipment cost to remove soil | \$198.88 | |
| Number of debris box containers needed to hold soil | 3 | Containers |
| Cost of one 20-yd3 -capacity debris box container (rent per week) | \$734.86 | per Container |
| Cost of debris box containers | \$2,204.58 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF REMOVAL OF SOIL | \$2,834.46 | |

Notes: Assume removal of 15' x 15' x 6' soil

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

Container Storage Areas Certification of Closure (CS_07-1)

| | | |
|--|-------------------|-------|
| Number of units requiring certification of closure | 1 | Units |
| Cost of certification of closure per unit | \$3,549.72 | |
| TOTAL COST OF CERTIFICATION OF CLOSURE | \$3,549.72 | |

Facility: AA Sydcol Waste Transfer **Unit:** HWMU1
Facility

02/03/2022

Backfill and Grading Summary (BF_01-1)

| | |
|--|-------------------|
| Backfilling Excavated Areas (BF-02) | \$5,292.62 |
| Grading to Provide Positive Slope (BF-03) | \$0.00 |
| Backfilling Storage, Process, and Containment Pits (BF-04) | \$0.00 |
| TOTAL COST OF BACKFILL AND GRADING | \$5,292.62 |

Backfilling Excavated Areas (BF_02-1)

VOLUME OF EXCAVATED AREA

| | | |
|---|--------|-----|
| Volume | 231.9 | yd3 |
| Compaction factor | 0.2500 | |
| Volume of additional fill required because of compaction factor | 58.0 | yd3 |
| Total volume of fill needed | 289.9 | yd3 |

BACKFILL AREA

| | | |
|---|------------|---------|
| Labor, material, and equipment cost per yd3 | \$16.77 | per yd3 |
| Subtotal of labor, material, and equipment cost to backfill | \$4,861.62 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF BACKFILL | \$5,292.62 | |

Cover Installation Inventory (CI_01-1)

AREA OF COVER

| | | |
|----------------------|-------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Area of Cover | 225.0 | ft2 |
| Area of Cover in yd2 | 25.0 | yd2 |

VOLUME OF UNDIFFERENTIATED FILL

| | | |
|-----------------------------|---------|-----|
| Thickness of Fill Layer | 6.0 | ft |
| Volume of Fill Layer | 1,350.0 | ft3 |
| Volume of Fill Layer in yd3 | 50.0 | yd3 |

VOLUME OF CLAY LAYER

| | | |
|-----------------------------|-----|-----|
| Thickness of Clay Layer | 0.0 | ft |
| Volume of Clay Layer | 0.0 | ft3 |
| Volume of Clay Layer in yd3 | 0.0 | yd3 |

VOLUME OF SAND OR GRAVEL

| | | |
|---------------------------------------|-----|-----|
| Thickness of Sand or Gravel Layer | 0.0 | ft |
| Volume of Sand or Gravel Layer | 0.0 | ft3 |
| Volume of Sand or Gravel Layer in yd3 | 0.0 | yd3 |

VOLUME OF EARTHEN LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Earthen Layer | 0.0 | ft |
| Volume of Earthen Layer | 0.0 | ft3 |
| Volume of Earthen Layer in yd3 | 0.0 | yd3 |

VOLUME OF TOPSOIL LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Topsoil | 0.0 | ft |
| Volume of Topsoil Layer | 0.0 | ft3 |
| Volume of Topsoil Layer in yd3 | 0.0 | yd3 |

Cover Installation Summary (CI_02-1)

| | | |
|---|------------|---|
| Installation of Undifferentiated Fill (CI-03) | \$1,292.00 | |
| Installation of Clay Layer (CI-04) | \$0.00 | |
| Installation of Geomembrane (CI-05) | \$0.00 | |
| Installation of Drainage Layer (CI-06) | \$0.00 | |
| Installation of Earthen Layer (CI-07) | \$0.00 | |
| Installation of Topsoil (CI-08) | \$0.00 | |
| Establishment of Vegetative Cover (CI-09) | \$0.00 | |
| Installation of Colloid Clay Liner (CI-10) | \$0.00 | |
| Installation of Asphalt Cover (CI-11) | \$0.00 | |
| Subtotal of Closure Costs | \$1,292.00 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$129.20 | |
| Survey Plat (CI-12) | \$0.00 | |
| Subtotal | \$1,421.20 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$284.24 | |
| TOTAL COST OF COVER | \$1,705.44 | |

Installation of Undifferentiated Fill (CI_03-1)

PURCHASE AND DELIVERY OF UNDIFFERENTIATED FILL

| | | |
|--|----------|---------|
| Volume of undifferentiated fill required | 50.0 | yd3 |
| Cost of undifferentiated fill per yd3 | \$10.00 | per yd3 |
| Subtotal of cost to purchase undifferentiated fill | \$500.00 | |
| Cost of delivery of undifferentiated fill per yd3 | \$5.73 | per yd3 |
| Subtotal of cost to deliver undifferentiated fill | \$286.50 | |
| Cost to Purchase and Deliver Undifferentiated Fill | \$786.50 | |

SPREADING OF UNDIFFERENTIATED FILL LAYER

| | | |
|--|------------|---------|
| Labor and equipment cost per yd3 to spread undifferentiated fill | \$1.49 | per yd3 |
| Subtotal of labor and equipment cost to spread undifferentiated fill | \$74.50 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| Cost to Spread Undifferentiated Fill Layer | \$505.50 | |
| TOTAL COST OF INSTALLATION OF UNDIFFERENTIATED FILL LAYER | \$1,292.00 | |

Decontamination Summary (DC_01-1)

| | |
|---|-------------|
| Decontamination of Unit by Steam Cleaning or Pressure Washing (DC-02) | \$16,870.95 |
| Decontamination of Unit by Sandblasting (DC-03) | \$0.00 |
| Decontamination of Heavy Equipment (DC-04) | \$3,419.39 |
| TOTAL COST OF DECONTAMINATION | \$20,290.34 |

Decontamination by Steam Cleaning or Pressure Wash (DC_02-1)

| | | |
|---|--------------------|--------------------|
| Area of unit to be decontaminated | 4,971.0 | ft2 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$83.81 | per Work Hour |
| Work rate to steam clean or pressure wash one ft2 | 0.0405 | Work hr per ft2 |
| Number of hours required to steam clean or pressure wash the unit | 201.3 | Work hrs |
| Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing | \$16,870.95 | |
| Ratio of decontamination fluid to area | 1.0 | gals per ft2 |
| Volume of decontamination fluid generated | 4,971.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING | \$16,870.95 | |

Decontamination of Heavy Equipment (DC_04-1)

| | | |
|---|--------------------|---------------|
| Number of hours needed to decontaminate all heavy equipment | 4.0 | Work hrs |
| Cost of steam cleaner rental per hour | \$7.52 | per Hour |
| Subtotal of steam cleaner rental costs | \$30.08 | |
| Choose the appropriate level of PPE | Protection Level C | |
| Labor and equipment cost per hour | \$86.79 | per Work Hour |
| Subtotal of labor costs to decontaminate by steam cleaning | \$347.16 | |
| Ratio of decontamination fluid to hour | 100.0 | gals per hr |
| Volume of decontamination fluid generated | 400.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| Cost of construction of temporary decontamination area for heavy equipment. | \$1,983.53 | |
| Cost of demolition of temporary decontamination area for heavy equipment. | \$1,058.62 | |
| TOTAL COST OF DECONTAMINATION OF HEAVY EQUIPMENT | \$3,419.39 | |

Notes: Decontamination of Heavy Equipment - 4 Hours includes time spent decontaminating equipment to prevent trackout from facility plus setup and rinsing equipment.

Sampling and Analysis Inventory (SA_01-1)

| | | |
|--|---|-----------------|
| Number of Drilling and Subsurface Soil Samples (2.5-inch boring) | 8 | Samples |
| Number of Drilling and Subsurface Soil Samples (4-inch boring) | 8 | Samples |
| Number of Concrete Core Samples | 4 | Samples |
| Number of Wipe Sample Locations | 0 | Sample Location |
| Number of Surface Water and Liquid Sample Locations | 0 | Sample Location |
| Number of Soil, Sludge, and Sediment Soil Samples | 0 | Sample Location |
| Number of Groundwater Sample Locations | 0 | Sample Location |
| Number of Lysimeters to be Sampled | 0 | Lysimeters |

Notes: Assume 4 concrete cores with 8 soil samples.

Sampling and Analysis Summary (SA_02-1)

| | |
|---|--------------------|
| Drilling and Subsurface Soil Sample - 2.5-Inch-Diameter-Holes (SA-03) | \$31,897.39 |
| Drilling and Subsurface Soil Sample - 4-Inch-Diameter-Holes (SA-04) | \$0.00 |
| Concrete Core Sample (SA-05) | \$0.00 |
| Wipe Sample (SA-06) | \$0.00 |
| Surface Water and Liquid Sample (SA-07) | \$0.00 |
| Soil, Sludge, and Sediment Sample (SA-08) | \$0.00 |
| Groundwater Sample (SA-09) | \$0.00 |
| Soil-Pore Liquid Sample (SA-10) | \$0.00 |
| Analysis of Subsurface Soil Sample (SA-11) | \$17,604.08 |
| TOTAL SAMPLING AND ANALYSIS COST | \$49,501.47 |

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03-1)

DRILLING AND SUBSURFACE SOIL SAMPLE COSTS - 2.5-INCH-DIAMETER-HOLES

| | | |
|--|----------------------------|----------------|
| Number of borings to be drilled | 8 | Borings |
| Enter depth of boreholes (sum of all) | 5 | ft |
| Choose the appropriate drilling method | Auger Boring - Level C | |
| Labor and equipment cost per work hour | \$126.10 | per Work Hour |
| Choose the appropriate drilling method | Hollow-Stem Auger 2.5-Inch | |
| Work rate to drill 2.5-inch-diameter hole | 0.3050 | Work hr per Ft |
| Number of hours required to drill 2.5-inch diameter hole | 1.5 | Work hrs |
| Cost of Drilling 2.5-Inch Borings per Sampling Event | \$189.15 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|-------------|-----------|
| Cost of Analysis per Sampling Event | \$31,708.24 | per Event |
|-------------------------------------|-------------|-----------|

SAMPLING EVENTS

| | | |
|---|-------------|-----------|
| Number of sampling events | 1 | Events |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES | \$31,897.39 | |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES PER EVENT | \$31,897.39 | per Event |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03)
Cost of Analysis per Sampling Event

| Method | Standard | Qty | Quick | Qty | Total |
|--|----------|----------|---------------|-----|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 16 \$199.14 | 0 | \$1,593.12 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 16 \$381.10 | 0 | \$3,048.80 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 16 \$58.36 | 0 | \$466.88 |
| Metals (SW 6010), per each metal | Both | \$13.73 | 200 \$27.46 | 0 | \$2,746.00 |
| Nonhalogenated volatile organics (SW 5030/SW 8015) | Both | \$110.00 | 16 \$220.00 | 0 | \$1,760.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 16 \$430.00 | 0 | \$3,440.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 16 \$316.72 | 0 | \$2,533.76 |
| Phenols (SW 3550/SW 8040) | Solid | \$77.59 | 16 \$155.18 | 0 | \$1,241.44 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 16 \$221.70 | 0 | \$1,773.60 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 16 \$1,138.50 | 0 | \$9,108.00 |
| Total petroleum hydrocarbons (SW 5030/SW 8015) | Solid | \$60.96 | 16 \$121.92 | 0 | \$975.36 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 16 \$377.66 | 0 | \$3,021.28 |

Concrete Core Samples (SA_05-1)

COLLECTION OF CORE SAMPLES

| | | |
|--|----------|---------------------|
| Number of corings to be drilled | 4 | Coring Samples |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$96.68 | per Work Hour |
| Work rate to drill each core sample to a 6-inch depth | 1.0000 | Work hrs per Sample |
| Number of hours required to drill 3-inch-diameter boring | 4.0 | Work hrs |
| Cost of Collection per Sampling Event | \$386.72 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|-------------|-----------|
| Cost of Analysis per Sampling Event | \$26,930.24 | per Event |
|-------------------------------------|-------------|-----------|

SAMPLING EVENTS

| | | |
|--|---------------|---------------|
| Number of sampling events | 0 | Events per yr |
| TOTAL COST OF SAMPLING AND ANALYSIS OF CORE SAMPLES | \$0.00 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

**Concrete Core Samples (SA_05)
Cost of Analysis per Sampling Event**

| Method | Standard | Qty | Quick | Qty | Total | |
|--|----------|----------|-------|------------|-------|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 8 | \$199.14 | 0 | \$796.56 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 8 | \$381.10 | 0 | \$1,524.40 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 8 | \$58.36 | 0 | \$233.44 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 8 | \$391.40 | 0 | \$1,565.60 |
| Kerosene group (mod 8010/8020, 8100, TPH, lead, EDB) | Both | \$391.40 | 8 | \$782.80 | 0 | \$3,131.20 |
| Metals, furnace, per each (SW 7000s) | Both | \$41.20 | 200 | \$82.40 | 0 | \$8,240.00 |
| Nonhalogenated volatile organics (SW 5030/SW 8015) | Both | \$110.00 | 8 | \$220.00 | 0 | \$880.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 8 | \$430.00 | 0 | \$1,720.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 8 | \$316.72 | 0 | \$1,266.88 |
| Phenols (SW 3550/SW 8040) | Solid | \$77.59 | 8 | \$155.18 | 0 | \$620.72 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 8 | \$221.70 | 0 | \$886.80 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 8 | \$1,138.50 | 0 | \$4,554.00 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 8 | \$377.66 | 0 | \$1,510.64 |

Soil, Sludge, and Sediment Samples (SA_08-1)

COLLECTION OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|--|----------|---------------------|
| Number of sampling locations | 0 | Sample Location |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$102.88 | per Work Hour |
| Work rate required to collect samples from one sampling location | 1.0000 | Work hrs per Sample |
| Number of hours required to collect all samples | 0.0 | Work hrs |
| Cost of Collection per Sampling Event | \$0.00 | per Event |

ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|-------------------------------------|-------------|-----------|
| Cost of Analysis per Sampling Event | \$15,079.64 | per Event |
|-------------------------------------|-------------|-----------|

SAMPLING EVENTS

| | | |
|---|--------|--------|
| Number of sampling events | 0 | Events |
| TOTAL COST OF SAMPLING AND ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES | \$0.00 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

**Soil, Sludge, and Sediment Samples (SA_08)
Cost of Analysis per Sampling Event**

| Method | Standard | Qty | Quick | Qty | Total | |
|--|----------|------------|-------|------------|-------|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 4 | \$199.14 | 0 | \$398.28 |
| BTEX/MTBE (mod 8020) | Both | \$73.82 | 4 | \$147.64 | 0 | \$295.28 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 4 | \$381.10 | 0 | \$762.20 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 4 | \$58.36 | 0 | \$116.72 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 4 | \$391.40 | 0 | \$782.80 |
| Metals (SW 6010), per each metal | Both | \$13.73 | 32 | \$27.46 | 0 | \$439.36 |
| Metals screen, 25 metals listed in method (EPA 200.7) | Liquid | \$1,476.00 | 2 | \$2,952.00 | 0 | \$2,952.00 |
| Metals, furnace, per each (SW 7000s) | Both | \$41.20 | 100 | \$82.40 | 0 | \$4,120.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 4 | \$430.00 | 0 | \$860.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 4 | \$316.72 | 0 | \$633.44 |
| Polynuclear aromatic hydrocarbons (SW 3550/SW 8100) | Solid | \$110.85 | 4 | \$221.70 | 0 | \$443.40 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 4 | \$1,138.50 | 0 | \$2,277.00 |
| Total petroleum hydrocarbons (EPA 418.1) | Both | \$60.96 | 4 | \$121.92 | 0 | \$243.84 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 4 | \$377.66 | 0 | \$755.32 |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

Analysis of Subsurface Soil Samples (SA_11-1)

ANALYSIS OF SUBSURFACE SOIL SAMPLES

| | | |
|--|--------------------|-----------|
| Enter the number of sampling events | 1 | Events |
| Cost of analysis per sampling event for subsurface soil sample | \$17,604.08 | per Event |
| TOTAL COST OF ANALYSIS OF SUBSURFACE SOIL SAMPLES | \$17,604.08 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU1

02/03/2022

Analysis of Subsurface Soil Samples (SA_11)

Cost of analysis per sampling event for subsurface soil sample

| Method | Standard | Qty | Quick | Qty | Total | |
|--|----------|----------|-------|------------|-------|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 8 | \$199.14 | 0 | \$796.56 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 8 | \$381.10 | 0 | \$1,524.40 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 8 | \$58.36 | 0 | \$233.44 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 8 | \$391.40 | 0 | \$1,565.60 |
| Metals (SW 6010), per each metal | Both | \$13.73 | 200 | \$27.46 | 0 | \$2,746.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 8 | \$430.00 | 0 | \$1,720.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 8 | \$316.72 | 0 | \$1,266.88 |
| Phenols (SW 9065) | Both | \$39.01 | 8 | \$78.02 | 0 | \$312.08 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 8 | \$221.70 | 0 | \$886.80 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 8 | \$1,138.50 | 0 | \$4,554.00 |
| Total petroleum hydrocarbons (SW 5030/SW 8015) | Solid | \$60.96 | 8 | \$121.92 | 0 | \$487.68 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 8 | \$377.66 | 0 | \$1,510.64 |

Treatment and Disposal Summary (TD_01-1)

| | |
|--|--------------|
| Treatment and Disposal of Wastes (TD-02) | \$146,280.00 |
| Treatment and Disposal of Decontamination Fluids (TD-03) | \$2,041.99 |
| Total Cost of Treatment and Disposal | \$148,321.99 |

Treatment and Disposal of Waste (TD_02-1)

SOLID WASTE TREATMENT AND DISPOSAL

| | | |
|--|--------|---------|
| Solid Waste Type (Optional: Enter Name) | 0 | |
| Volume in yd3 of solid waste to be treated and disposed of | 0.0 | yd3 |
| Treatment and disposal costs per yd3 | \$0.00 | per yd3 |
| Cost to Treat and Dispose of Solid Waste | \$0.00 | |

LIQUID WASTE TREATMENT AND DISPOSAL

| | | |
|---|-------------|------------|
| Liquid Waste Type (Optional: Enter Name) | Decon | |
| Volume in gallons of liquid waste to be treated and disposed of | 6,570.0 | gal |
| Treatment and disposal costs per gallon | \$4.00 | per Gallon |
| Cost to Treat and Dispose of Liquid Waste | \$26,280.00 | |

DRUMMED WASTE TREATMENT AND DISPOSAL

| | | |
|---|---------------------|----------|
| Drummed Waste Type (Optional: Enter Name) | Solvents | |
| Number of drums to be treated and disposed of | 600 | Drums |
| Treatment and disposal costs per drum | \$200.00 | per Drum |
| Cost to Treat and Dispose of Drummed Waste | \$120,000.00 | |
| TOTAL COST FOR TREATMENT AND DISPOSAL OF WASTE | \$146,280.00 | |

Treatment and Disposal of Decon Fluid (TD_03-1)

Volume of decontamination fluid generated from closure activities

| | | |
|---|-------------------|--------------------|
| Volume of decontamination fluid from Primary Unit | 0.0 | gal |
| Volume of decontamination fluid generated by steam cleaning or pressure washing (DC-02) | 4,971.0 | gal |
| Volume of decontamination fluid from heavy equipment (DC-04) | 400.0 | gal |
| Total Volume of Decontamination Fluid | 5,371.0 | gal |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$98.54 | per Work Hour |
| Work rate to pump decontamination fluid to a holding tank | 0.0001 | Work hr per gal |
| Number of hours required to pump decontamination fluid to a holding tank | 0.5371 | Work hrs |
| Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank | \$52.93 | |
| Number of days required to rent a holding tank | 1 | Days |
| Holding tank rental fee (10,000 gal tank per day) | \$162.92 | per Day |
| Number of tanks required | 1 | Tanks |
| Subtotal of tank rental costs | \$162.92 | |
| Cost for treatment and disposal | \$0.34 | per Gallon |
| Treatment and disposal costs for bulk liquid | \$1,826.14 | |
| TOTAL COST TO TREAT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID | \$2,041.99 | |

Transportation of Waste (TR_01-1)

TRANSPORTATION OF WASTE IN DRUMS

| | | |
|---|-------------|---------------|
| Number of drums of waste | 600 | Drums |
| Number of truckloads needed to transport waste in drums | 8 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of 55-gallon drums | \$2,256.00 | per Truckload |
| Cost to Transport Waste in Drums | \$18,048.00 | |

TRANSPORTATION OF BULK LIQUID

| | | |
|---|------------|---------------|
| Gallons of liquid waste | 6,570.0 | gal |
| Number of truckloads needed to transport bulk free liquid waste | 1 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk liquids | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Liquid Wastes | \$2,256.00 | |

TRANSPORTATION OF BULK WASTE

| | | |
|---|-------------|---------------|
| Number of waste debris boxes | 2 | Containers |
| Number of truckloads needed to transport bulk waste | 2 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk waste | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Waste | \$4,512.00 | |
| TOTAL COST OF TRANSPORTATION OF WASTE | \$24,816.00 | |

Notes: Assume disposal at HW landfill in Beatty NV.
 Assume 2 containers of debris generated in building (concrete investigative-derived waste brooms and shovels).

Container Storage Areas Summary (CS_02-1)

| | | |
|---|---------------------|---|
| Removal of Waste (CS-03) | \$5,004.00 | |
| Demolition and Removal of Pads (CS-04) | \$0.00 | |
| Removal of Process Equipment (CS-05) | \$0.00 | |
| Removal of Soil (CS-06) | \$2,834.46 | |
| Backfill and Grading (BF-01) | \$11,381.81 | |
| Decontamination (DC-01) | \$32,593.65 | |
| Sampling and Analysis (SA-02) | \$54,504.95 | |
| Monitoring Well Installation (MW-01) | \$0.00 | |
| Transportation (TR-01) | \$42,864.00 | |
| Treatment and Disposal (TD-01) | \$257,358.21 | |
| User Defined Cost (UD-01) | \$0.00 | |
| Subtotal of Closure Costs | \$406,541.08 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$40,654.11 | |
| Certification of Closure (CS-07) | \$3,549.72 | |
| Subtotal | \$450,744.91 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$90,148.98 | |
| Landfill Closure (Cover Installation) (CI-02) | \$1,705.44 | |
| TOTAL COST OF CLOSURE | \$542,599.33 | |

Container Storage Areas Inventory (CS_01-1)

MAXIMUM PERMITTED CAPACITY

| | | |
|--|----------|-----|
| Volume of liquid waste | 60,500.0 | gal |
| Volume of solid waste | 0.0 | yd3 |
| Percent of loose solid debris | 0.0 | % |
| Percent of drummed solid waste | 0.0 | % |
| Percent of baled waste or other monolithic waste | 0.0 | % |
| Volume of loose solid debris | 0.0 | yd3 |
| Volume of solid waste in drums | 0.0 | yd3 |
| Volume of monolithic waste | 0.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|---------|-----|
| Length (excluding any curbs or berm) | 99.0 | ft |
| Width (excluding any curbs or berm) | 84.0 | ft |
| Surface Area of Containment System Pad | 8,316.0 | ft2 |
| Surface Area of Containment System Pad in yd2 | 924.0 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|----------|-----|
| Thickness | 1.5 | ft |
| Volume of Containment System Pad | 12,474.0 | ft3 |
| Volume of Containment System Pad in yd3 | 462.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-------|-----|
| Inside Perimeter | 280.0 | ft |
| Height | 1.0 | ft |
| Surface Area of Containment System Berm | 280.0 | ft2 |
| Surface Area of Containment System Berm in yd2 | 31.1 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-------|-----|
| Thickness | 1.0 | ft |
| Volume of Containment System Berm | 280.0 | ft3 |
| Volume of Containment System Berm in yd3 | 10.4 | yd3 |

SURFACE AREA OF OTHER STRUCTURES

| | | |
|---|-----|-----|
| Surface Area of Other Structures | 0.0 | ft2 |
| Surface Area of Other Structures in yd2 | 0.0 | yd2 |

VOLUME OF OTHER STRUCTURES

| | | |
|----------------------------|-----|-----|
| Volume of Other Structures | 0.0 | yd3 |
|----------------------------|-----|-----|

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

VOLUME OF CONTAMINATED SOIL TO BE REMOVED

| | | |
|--|---------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Depth | 6.0 | ft |
| Volume of Contaminated Soil to be Removed | 1,350.0 | ft3 |
| Volume of Contaminated Soil to be Removed in yd3 | 50.0 | yd3 |

AREA OF SITE TO BE GRADED WITHOUT SOIL REMOVAL

| | | |
|---|-----|-----|
| Length | 0.0 | ft |
| Width | 0.0 | ft |
| Area of Site to be Graded Without Soil Removal | 0.0 | ft2 |
| Area of Site to be Graded Without Soil Removal in yd2 | 0.0 | yd2 |

Notes: Assume a 15' x 15' spill area from long-term liquids consolidation. Depth of contamination is assumed to be 5'.

Container Storage Areas Removal of Waste (CS_03-1)

REMOVAL OF LOOSE SOLID DEBRIS

| | | |
|-------------------------------------|--------|--------------------|
| Volume of loose debris waste | 0.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per yd3 | \$2.48 | per yd3 |
| Cost to Remove Loose Solid Debris | \$0.00 | |

REMOVAL OF DRUMMED WASTE

| | | |
|-------------------------------------|------------|--------------------|
| Number of Drums | 1,100 | Drums |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per drum | \$4.38 | |
| Cost to Remove Waste in Drums | \$4,818.00 | |

REMOVAL OF SOLID MONOLITHIC WASTE

| | | |
|-------------------------------------|---------|--------------------|
| Number of monolithic forms | 0.0 | Forms |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per form | \$17.53 | per Form |
| Cost to Remove Monolithic Waste | \$0.00 | |

DRY SWEEP STORAGE PROCESS, HANDLING AREA

| | | |
|---|-------------------|---------|
| Surface area to dry sweep | 8,316.0 | ft2 |
| Surface area to dry sweep in thousand square feet (MSF) | 8.3 | MSF |
| Labor and equipment cost per ft2 | \$22.41 | per MSF |
| Cost to Dry Sweep Area | \$186.00 | |
| TOTAL COST OF WASTE REMOVAL | \$5,004.00 | |

Container Storage Areas Removal of Soil (CS_06-1)

| | | |
|---|------------|--------------------|
| Volume of contaminated soil to be removed | 50.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$132.59 | |
| Work rate required to remove one yd3 | 0.0300 | Work hr per yd3 |
| Number of hours required to remove soil | 1.5 | Work hrs |
| Subtotal of labor and equipment cost to remove soil | \$198.88 | |
| Number of debris box containers needed to hold soil | 3 | Containers |
| Cost of one 20-yd3 -capacity debris box container (rent per week) | \$734.86 | per Container |
| Cost of debris box containers | \$2,204.58 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF REMOVAL OF SOIL | \$2,834.46 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

Container Storage Areas Certification of Closure (CS_07-1)

| | | |
|--|-------------------|-------|
| Number of units requiring certification of closure | 1 | Units |
| Cost of certification of closure per unit | \$3,549.72 | |
| TOTAL COST OF CERTIFICATION OF CLOSURE | \$3,549.72 | |

Backfill and Grading Summary (BF_01-1)

| | |
|--|--------------------|
| Backfilling Excavated Areas (BF-02) | \$11,381.81 |
| Grading to Provide Positive Slope (BF-03) | \$0.00 |
| Backfilling Storage, Process, and Containment Pits (BF-04) | \$0.00 |
| TOTAL COST OF BACKFILL AND GRADING | \$11,381.81 |

Backfilling Excavated Areas (BF_02-1)

VOLUME OF EXCAVATED AREA

| | | |
|---|--------|-----|
| Volume | 522.4 | yd3 |
| Compaction factor | 0.2500 | |
| Volume of additional fill required because of compaction factor | 130.6 | yd3 |
| Total volume of fill needed | 653.0 | yd3 |

BACKFILL AREA

| | | |
|---|-------------|---------|
| Labor, material, and equipment cost per yd3 | \$16.77 | per yd3 |
| Subtotal of labor, material, and equipment cost to backfill | \$10,950.81 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF BACKFILL | \$11,381.81 | |

Cover Installation Inventory (CI_01-1)

AREA OF COVER

| | | |
|----------------------|-------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Area of Cover | 225.0 | ft2 |
| Area of Cover in yd2 | 25.0 | yd2 |

VOLUME OF UNDIFFERENTIATED FILL

| | | |
|-----------------------------|---------|-----|
| Thickness of Fill Layer | 6.0 | ft |
| Volume of Fill Layer | 1,350.0 | ft3 |
| Volume of Fill Layer in yd3 | 50.0 | yd3 |

VOLUME OF CLAY LAYER

| | | |
|-----------------------------|-----|-----|
| Thickness of Clay Layer | 0.0 | ft |
| Volume of Clay Layer | 0.0 | ft3 |
| Volume of Clay Layer in yd3 | 0.0 | yd3 |

VOLUME OF SAND OR GRAVEL

| | | |
|---------------------------------------|-----|-----|
| Thickness of Sand or Gravel Layer | 0.0 | ft |
| Volume of Sand or Gravel Layer | 0.0 | ft3 |
| Volume of Sand or Gravel Layer in yd3 | 0.0 | yd3 |

VOLUME OF EARTHEN LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Earthen Layer | 0.0 | ft |
| Volume of Earthen Layer | 0.0 | ft3 |
| Volume of Earthen Layer in yd3 | 0.0 | yd3 |

VOLUME OF TOPSOIL LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Topsoil | 0.0 | ft |
| Volume of Topsoil Layer | 0.0 | ft3 |
| Volume of Topsoil Layer in yd3 | 0.0 | yd3 |

Notes: Assume contaminated area is 15' x 15' x 6' (~50 cy)

Cover Installation Summary (CI_02-1)

| | | |
|---|------------|---|
| Installation of Undifferentiated Fill (CI-03) | \$1,292.00 | |
| Installation of Clay Layer (CI-04) | \$0.00 | |
| Installation of Geomembrane (CI-05) | \$0.00 | |
| Installation of Drainage Layer (CI-06) | \$0.00 | |
| Installation of Earthen Layer (CI-07) | \$0.00 | |
| Installation of Topsoil (CI-08) | \$0.00 | |
| Establishment of Vegetative Cover (CI-09) | \$0.00 | |
| Installation of Colloid Clay Liner (CI-10) | \$0.00 | |
| Installation of Asphalt Cover (CI-11) | \$0.00 | |
| Subtotal of Closure Costs | \$1,292.00 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$129.20 | |
| Survey Plat (CI-12) | \$0.00 | |
| Subtotal | \$1,421.20 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$284.24 | |
| TOTAL COST OF COVER | \$1,705.44 | |

Installation of Undifferentiated Fill (CI_03-1)

PURCHASE AND DELIVERY OF UNDIFFERENTIATED FILL

| | | |
|--|----------|---------|
| Volume of undifferentiated fill required | 50.0 | yd3 |
| Cost of undifferentiated fill per yd3 | \$10.00 | per yd3 |
| Subtotal of cost to purchase undifferentiated fill | \$500.00 | |
| Cost of delivery of undifferentiated fill per yd3 | \$5.73 | per yd3 |
| Subtotal of cost to deliver undifferentiated fill | \$286.50 | |
| Cost to Purchase and Deliver Undifferentiated Fill | \$786.50 | |

SPREADING OF UNDIFFERENTIATED FILL LAYER

| | | |
|--|-------------------|---------|
| Labor and equipment cost per yd3 to spread undifferentiated fill | \$1.49 | per yd3 |
| Subtotal of labor and equipment cost to spread undifferentiated fill | \$74.50 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| Cost to Spread Undifferentiated Fill Layer | \$505.50 | |
| TOTAL COST OF INSTALLATION OF UNDIFFERENTIATED FILL LAYER | \$1,292.00 | |

Decontamination Summary (DC_01-1)

| | |
|---|-------------|
| Decontamination of Unit by Steam Cleaning or Pressure Washing (DC-02) | \$29,174.26 |
| Decontamination of Unit by Sandblasting (DC-03) | \$0.00 |
| Decontamination of Heavy Equipment (DC-04) | \$3,419.39 |
| TOTAL COST OF DECONTAMINATION | \$32,593.65 |

Decontamination by Steam Cleaning or Pressure Wash (DC_02-1)

| | | |
|---|--------------------|--------------------|
| Area of unit to be decontaminated | 8,596.0 | ft2 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$83.81 | per Work Hour |
| Work rate to steam clean or pressure wash one ft2 | 0.0405 | Work hr per ft2 |
| Number of hours required to steam clean or pressure wash the unit | 348.1 | Work hrs |
| Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing | \$29,174.26 | |
| Ratio of decontamination fluid to area | 1.0 | gals per ft2 |
| Volume of decontamination fluid generated | 8,596.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING | \$29,174.26 | |

Decontamination of Heavy Equipment (DC_04-1)

| | | |
|---|--------------------|---------------|
| Number of hours needed to decontaminate all heavy equipment | 4.0 | Work hrs |
| Cost of steam cleaner rental per hour | \$7.52 | per Hour |
| Subtotal of steam cleaner rental costs | \$30.08 | |
| Choose the appropriate level of PPE | Protection Level C | |
| Labor and equipment cost per hour | \$86.79 | per Work Hour |
| Subtotal of labor costs to decontaminate by steam cleaning | \$347.16 | |
| Ratio of decontamination fluid to hour | 100.0 | gals per hr |
| Volume of decontamination fluid generated | 400.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| Cost of construction of temporary decontamination area for heavy equipment. | \$1,983.53 | |
| Cost of demolition of temporary decontamination area for heavy equipment. | \$1,058.62 | |
| TOTAL COST OF DECONTAMINATION OF HEAVY EQUIPMENT | \$3,419.39 | |

Notes: Decontamination of Heavy Equipment - 4 Hours includes time spent decontaminating equipment to prevent trackout from facility plus setup and rinsing equipment.

Sampling and Analysis Inventory (SA_01-1)

| | | |
|--|---|-----------------|
| Number of Drilling and Subsurface Soil Samples (2.5-inch boring) | 8 | Samples |
| Number of Drilling and Subsurface Soil Samples (4-inch boring) | 8 | Samples |
| Number of Concrete Core Samples | 4 | Samples |
| Number of Wipe Sample Locations | 0 | Sample Location |
| Number of Surface Water and Liquid Sample Locations | 0 | Sample Location |
| Number of Soil, Sludge, and Sediment Soil Samples | 0 | Sample Location |
| Number of Groundwater Sample Locations | 0 | Sample Location |
| Number of Lysimeters to be Sampled | 0 | Lysimeters |

Sampling and Analysis Summary (SA_02-1)

| | |
|---|-------------|
| Drilling and Subsurface Soil Sample - 2.5-Inch-Diameter-Holes (SA-03) | \$30,868.11 |
| Drilling and Subsurface Soil Sample - 4-Inch-Diameter-Holes (SA-04) | \$0.00 |
| Concrete Core Sample (SA-05) | \$6,718.36 |
| Wipe Sample (SA-06) | \$0.00 |
| Surface Water and Liquid Sample (SA-07) | \$0.00 |
| Soil, Sludge, and Sediment Sample (SA-08) | \$0.00 |
| Groundwater Sample (SA-09) | \$0.00 |
| Soil-Pore Liquid Sample (SA-10) | \$0.00 |
| Analysis of Subsurface Soil Sample (SA-11) | \$16,918.48 |
| TOTAL SAMPLING AND ANALYSIS COST | \$54,504.95 |

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03-1)

DRILLING AND SUBSURFACE SOIL SAMPLE COSTS - 2.5-INCH-DIAMETER-HOLES

| | | |
|--|----------------------------|----------------|
| Number of borings to be drilled | 8 | Borings |
| Enter depth of boreholes (sum of all) | 5 | ft |
| Choose the appropriate drilling method | Auger Boring - Level C | |
| Labor and equipment cost per work hour | \$126.10 | per Work Hour |
| Choose the appropriate drilling method | Hollow-Stem Auger 2.5-Inch | |
| Work rate to drill 2.5-inch-diameter hole | 0.3050 | Work hr per Ft |
| Number of hours required to drill 2.5-inch diameter hole | 1.5 | Work hrs |
| Cost of Drilling 2.5-Inch Borings per Sampling Event | \$189.15 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|-------------|-----------|
| Cost of Analysis per Sampling Event | \$30,678.96 | per Event |
|-------------------------------------|-------------|-----------|

SAMPLING EVENTS

| | | |
|---|-------------|-----------|
| Number of sampling events | 1 | Events |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES | \$30,868.11 | |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES PER EVENT | \$30,868.11 | per Event |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03)
Cost of Analysis per Sampling Event

| Method | Standard | Qty | Quick | Qty | Total | |
|---|----------|----------|-------|------------|-------|------------|
| BTEX/MTBE (mod 8020) | Both | \$73.82 | 16 | \$147.64 | 0 | \$1,181.12 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 16 | \$381.10 | 0 | \$3,048.80 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 16 | \$58.36 | 0 | \$466.88 |
| Metals, flame, per each (SW 7000s) | Both | \$13.73 | 200 | \$27.46 | 0 | \$2,746.00 |
| Nonhalogenated volatile organics (SW 5030/SW 8015) | Both | \$110.00 | 16 | \$220.00 | 0 | \$1,760.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 16 | \$430.00 | 0 | \$3,440.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 16 | \$316.72 | 0 | \$2,533.76 |
| Phenols (SW 9065) | Both | \$39.01 | 16 | \$78.02 | 0 | \$624.16 |
| Polynuclear aromatic hydrocarbons (SW 3550/SW 8100) | Solid | \$110.85 | 16 | \$221.70 | 0 | \$1,773.60 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 16 | \$1,138.50 | 0 | \$9,108.00 |
| Total petroleum hydrocarbons (EPA 418.1) | Both | \$60.96 | 16 | \$121.92 | 0 | \$975.36 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 16 | \$377.66 | 0 | \$3,021.28 |

Concrete Core Samples (SA_05-1)

COLLECTION OF CORE SAMPLES

| | | |
|--|----------|---------------------|
| Number of corings to be drilled | 4 | Coring Samples |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$96.68 | per Work Hour |
| Work rate to drill each core sample to a 6-inch depth | 1.0000 | Work hrs per Sample |
| Number of hours required to drill 3-inch-diameter boring | 4.0 | Work hrs |
| Cost of Collection per Sampling Event | \$386.72 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|------------|-----------|
| Cost of Analysis per Sampling Event | \$6,331.64 | per Event |
|-------------------------------------|------------|-----------|

SAMPLING EVENTS

| | | |
|--|-------------------|---------------|
| Number of sampling events | 1 | Events per yr |
| TOTAL COST OF SAMPLING AND ANALYSIS OF CORE SAMPLES | \$6,718.36 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

**Concrete Core Samples (SA_05)
Cost of Analysis per Sampling Event**

| Method | | Standard | Qty | Quick | Qty | Total |
|---|-------|-----------------|------------|--------------|------------|--------------|
| BTEX/MTBE (mod 8020) | Both | \$73.82 | 4 | \$147.64 | 0 | \$295.28 |
| Metals, flame, per each (SW 7000s) | Both | \$13.73 | 100 | \$27.46 | 0 | \$1,373.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 4 | \$316.72 | 0 | \$633.44 |
| Phenols (SW 3550/SW 8040) | Solid | \$77.59 | 4 | \$155.18 | 0 | \$310.36 |
| Polynuclear aromatic hydrocarbons (SW 3550/SW 8100) | Solid | \$110.85 | 4 | \$221.70 | 0 | \$443.40 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 4 | \$1,138.50 | 0 | \$2,277.00 |
| Total petroleum hydrocarbons (EPA 418.1) | Both | \$60.96 | 4 | \$121.92 | 0 | \$243.84 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 4 | \$377.66 | 0 | \$755.32 |

Wipe Samples (SA_06-1)

COLLECTION OF WIPE SAMPLES

| | | |
|--|----------|---------------------|
| Number of sampling locations | 0 | Sample Location |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$114.04 | per Work Hour |
| Work rate required to collect samples from one sampling location | 0.5000 | Work hrs per Sample |
| Number of hours required to collect all samples | 0.0 | Work hrs |
| Cost of Collection per Sampling Event | \$0.00 | per Event |

ANALYSIS OF WIPE SAMPLE

| | | |
|-------------------------------------|--------|-----------|
| Cost of Analysis per Sampling Event | \$0.00 | per Event |
|-------------------------------------|--------|-----------|

SAMPLING EVENTS

| | | |
|--|---------------|--------|
| Number of sampling events | 0 | Events |
| TOTAL COST OF SAMPLING AND ANALYSIS OF WIPE SAMPLES | \$0.00 | |

Soil, Sludge, and Sediment Samples (SA_08-1)

COLLECTION OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|--|---------|---------------------|
| Number of sampling locations | 0 | Sample Location |
| Choose the appropriate level of PPE | | Protection Level D |
| Labor and equipment cost per work hour | \$66.88 | per Work Hour |
| Work rate required to collect samples from one sampling location | 1.0000 | Work hrs per Sample |
| Number of hours required to collect all samples | 0.0 | Work hrs |
| Cost of Collection per Sampling Event | \$0.00 | per Event |

ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|-------------------------------------|--------|-----------|
| Cost of Analysis per Sampling Event | \$0.00 | per Event |
|-------------------------------------|--------|-----------|

SAMPLING EVENTS

| | | |
|--|---------------|--------|
| Number of sampling events | 0 | Events |
| TOTAL COST OF SAMPLING AND ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES | \$0.00 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

Analysis of Subsurface Soil Samples (SA_11-1)

ANALYSIS OF SUBSURFACE SOIL SAMPLES

| | | |
|--|--------------------|-----------|
| Enter the number of sampling events | 1 | Events |
| Cost of analysis per sampling event for subsurface soil sample | \$16,918.48 | per Event |
| TOTAL COST OF ANALYSIS OF SUBSURFACE SOIL SAMPLES | \$16,918.48 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU2

02/03/2022

Analysis of Subsurface Soil Samples (SA_11)

Cost of analysis per sampling event for subsurface soil sample

| Method | Standard | Qty | Quick | Qty | Total |
|--|----------|----------|-------|------------|--------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 8 | \$199.14 | 0 \$796.56 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 8 | \$381.10 | 0 \$1,524.40 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 8 | \$58.36 | 0 \$233.44 |
| Metals (SW 6010), per each metal | Both | \$13.73 | 200 | \$27.46 | 0 \$2,746.00 |
| Nonhalogenated volatile organics (SW 5030/SW 8015) | Both | \$110.00 | 8 | \$220.00 | 0 \$880.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 8 | \$430.00 | 0 \$1,720.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 8 | \$316.72 | 0 \$1,266.88 |
| Phenols (SW 9065) | Both | \$39.01 | 8 | \$78.02 | 0 \$312.08 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 8 | \$221.70 | 0 \$886.80 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 8 | \$1,138.50 | 0 \$4,554.00 |
| Total petroleum hydrocarbons (SW 5030/SW 8015) | Solid | \$60.96 | 8 | \$121.92 | 0 \$487.68 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 8 | \$377.66 | 0 \$1,510.64 |

Treatment and Disposal Summary (TD_01-1)

| | |
|--|--------------|
| Treatment and Disposal of Wastes (TD-02) | \$254,048.00 |
| Treatment and Disposal of Decontamination Fluids (TD-03) | \$3,310.21 |
| Total Cost of Treatment and Disposal | \$257,358.21 |

Treatment and Disposal of Waste (TD_02-1)

SOLID WASTE TREATMENT AND DISPOSAL

| | | |
|--|--------|---------|
| Solid Waste Type (Optional: Enter Name) | 0 | |
| Volume in yd3 of solid waste to be treated and disposed of | 0.0 | yd3 |
| Treatment and disposal costs per yd3 | \$0.00 | per yd3 |
| Cost to Treat and Dispose of Solid Waste | \$0.00 | |

LIQUID WASTE TREATMENT AND DISPOSAL

| | | |
|---|-------------|------------|
| Liquid Waste Type (Optional: Enter Name) | Decon | |
| Volume in gallons of liquid waste to be treated and disposed of | 8,512.0 | gal |
| Treatment and disposal costs per gallon | \$4.00 | per Gallon |
| Cost to Treat and Dispose of Liquid Waste | \$34,048.00 | |

DRUMMED WASTE TREATMENT AND DISPOSAL

| | | |
|---|---------------------|----------|
| Drummed Waste Type (Optional: Enter Name) | Solvents | |
| Number of drums to be treated and disposed of | 1,100 | Drums |
| Treatment and disposal costs per drum | \$200.00 | per Drum |
| Cost to Treat and Dispose of Drummed Waste | \$220,000.00 | |
| TOTAL COST FOR TREATMENT AND DISPOSAL OF WASTE | \$254,048.00 | |

Notes: Assume drummed waste is solvents. 200 dollars per drum is average price.

Treatment and Disposal of Decon Fluid (TD_03-1)

Volume of decontamination fluid generated from closure activities

| | | |
|---|-------------------|--------------------|
| Volume of decontamination fluid from Primary Unit | 0.0 | gal |
| Volume of decontamination fluid generated by steam cleaning or pressure washing (DC-02) | 8,596.0 | gal |
| Volume of decontamination fluid from heavy equipment (DC-04) | 400.0 | gal |
| Total Volume of Decontamination Fluid | 8,996.0 | gal |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$98.54 | per Work Hour |
| Work rate to pump decontamination fluid to a holding tank | 0.0001 | Work hr per gal |
| Number of hours required to pump decontamination fluid to a holding tank | 0.8996 | Work hrs |
| Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank | \$88.65 | |
| Number of days required to rent a holding tank | 1 | Days |
| Holding tank rental fee (10,000 gal tank per day) | \$162.92 | per Day |
| Number of tanks required | 1 | Tanks |
| Subtotal of tank rental costs | \$162.92 | |
| Cost for treatment and disposal | \$0.34 | per Gallon |
| Treatment and disposal costs for bulk liquid | \$3,058.64 | |
| TOTAL COST TO TREAT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID | \$3,310.21 | |

Transportation of Waste (TR_01-1)

TRANSPORTATION OF WASTE IN DRUMS

| | | |
|---|-------------|---------------|
| Number of drums of waste | 980 | Drums |
| Number of truckloads needed to transport waste in drums | 13 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of 55-gallon drums | \$2,256.00 | per Truckload |
| Cost to Transport Waste in Drums | \$29,328.00 | |

TRANSPORTATION OF BULK LIQUID

| | | |
|---|------------|---------------|
| Gallons of liquid waste | 8,512.0 | gal |
| Number of truckloads needed to transport bulk free liquid waste | 2 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk liquids | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Liquid Wastes | \$4,512.00 | |

TRANSPORTATION OF BULK WASTE

| | | |
|---|--------------------|---------------|
| Number of waste debris boxes | 4 | Containers |
| Number of truckloads needed to transport bulk waste | 4 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk waste | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Waste | \$9,024.00 | |
| TOTAL COST OF TRANSPORTATION OF WASTE | \$42,864.00 | |

Notes: Assume disposal in HW landfill in Beatty NV
 Assume 4 container so bulk waste generated (concrete investigative-derived waste brooms shovels)

Container Storage Areas Summary (CS_02-1)

| | | |
|---|--------------|---|
| Removal of Waste (CS-03) | \$6,842.18 | |
| Demolition and Removal of Pads (CS-04) | \$0.00 | |
| Removal of Process Equipment (CS-05) | \$0.00 | |
| Removal of Soil (CS-06) | \$2,834.46 | |
| Backfill and Grading (BF-01) | \$9,399.60 | |
| Decontamination (DC-01) | \$37,161.20 | |
| Sampling and Analysis (SA-02) | \$49,192.83 | |
| Monitoring Well Installation (MW-01) | \$0.00 | |
| Transportation (TR-01) | \$56,400.00 | |
| Treatment and Disposal (TD-01) | \$347,442.22 | |
| User Defined Cost (UD-01) | \$0.00 | |
| Subtotal of Closure Costs | \$509,272.49 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$50,927.25 | |
| Certification of Closure (CS-07) | \$3,549.72 | |
| Subtotal | \$563,749.46 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$112,749.89 | |
| Landfill Closure (Cover Installation) (CI-02) | \$1,705.44 | |
| TOTAL COST OF CLOSURE | \$678,204.79 | |

Container Storage Areas Inventory (CS_01-1)

MAXIMUM PERMITTED CAPACITY

| | | |
|--|----------|-----|
| Volume of liquid waste | 83,160.0 | gal |
| Volume of solid waste | 0.0 | yd3 |
| Percent of loose solid debris | 0.0 | % |
| Percent of drummed solid waste | 0.0 | % |
| Percent of baled waste or other monolithic waste | 0.0 | % |
| Volume of loose solid debris | 0.0 | yd3 |
| Volume of solid waste in drums | 0.0 | yd3 |
| Volume of monolithic waste | 0.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|---------|-----|
| Length (excluding any curbs or berm) | 199.0 | ft |
| Width (excluding any curbs or berm) | 49.0 | ft |
| Surface Area of Containment System Pad | 9,751.0 | ft2 |
| Surface Area of Containment System Pad in yd2 | 1,083.4 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|---------|-----|
| Thickness | 1.0 | ft |
| Volume of Containment System Pad | 9,751.0 | ft3 |
| Volume of Containment System Pad in yd3 | 361.1 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-------|-----|
| Inside Perimeter | 300.0 | ft |
| Height | 1.0 | ft |
| Surface Area of Containment System Berm | 300.0 | ft2 |
| Surface Area of Containment System Berm in yd2 | 33.3 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-------|-----|
| Thickness | 1.5 | ft |
| Volume of Containment System Berm | 450.0 | ft3 |
| Volume of Containment System Berm in yd3 | 16.7 | yd3 |

SURFACE AREA OF OTHER STRUCTURES

| | | |
|---|-----|-----|
| Surface Area of Other Structures | 0.0 | ft2 |
| Surface Area of Other Structures in yd2 | 0.0 | yd2 |

VOLUME OF OTHER STRUCTURES

| | | |
|----------------------------|-----|-----|
| Volume of Other Structures | 0.0 | yd3 |
|----------------------------|-----|-----|

Facility: AA Sydcol Waste Transfer **Unit:** HWMU3
Facility

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VOLUME OF CONTAMINATED SOIL TO BE REMOVED

| | | |
|--|---------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Depth | 6.0 | ft |
| Volume of Contaminated Soil to be Removed | 1,350.0 | ft3 |
| Volume of Contaminated Soil to be Removed in yd3 | 50.0 | yd3 |

AREA OF SITE TO BE GRADED WITHOUT SOIL REMOVAL

| | | |
|---|-----|-----|
| Length | 0.0 | ft |
| Width | 0.0 | ft |
| Area of Site to be Graded Without Soil Removal | 0.0 | ft2 |
| Area of Site to be Graded Without Soil Removal in yd2 | 0.0 | yd2 |

Container Storage Areas Removal of Waste (CS_03-1)

REMOVAL OF LOOSE SOLID DEBRIS

| | | |
|-------------------------------------|--------|--------------------|
| Volume of loose debris waste | 0.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per yd3 | \$2.48 | per yd3 |
| Cost to Remove Loose Solid Debris | \$0.00 | |

REMOVAL OF DRUMMED WASTE

| | | |
|-------------------------------------|------------|--------------------|
| Number of Drums | 1,512 | Drums |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per drum | \$4.38 | |
| Cost to Remove Waste in Drums | \$6,622.56 | |

REMOVAL OF SOLID MONOLITHIC WASTE

| | | |
|-------------------------------------|---------|--------------------|
| Number of monolithic forms | 0.0 | Forms |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per form | \$17.53 | per Form |
| Cost to Remove Monolithic Waste | \$0.00 | |

DRY SWEEP STORAGE PROCESS, HANDLING AREA

| | | |
|---|-------------------|---------|
| Surface area to dry sweep | 9,751.0 | ft2 |
| Surface area to dry sweep in thousand square feet (MSF) | 9.8 | MSF |
| Labor and equipment cost per ft2 | \$22.41 | per MSF |
| Cost to Dry Sweep Area | \$219.62 | |
| TOTAL COST OF WASTE REMOVAL | \$6,842.18 | |

Container Storage Areas Removal of Soil (CS_06-1)

| | | |
|---|------------|--------------------|
| Volume of contaminated soil to be removed | 50.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$132.59 | |
| Work rate required to remove one yd3 | 0.0300 | Work hr per yd3 |
| Number of hours required to remove soil | 1.5 | Work hrs |
| Subtotal of labor and equipment cost to remove soil | \$198.88 | |
| Number of debris box containers needed to hold soil | 3 | Containers |
| Cost of one 20-yd3 -capacity debris box container (rent per week) | \$734.86 | per Container |
| Cost of debris box containers | \$2,204.58 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF REMOVAL OF SOIL | \$2,834.46 | |

Notes: Assume removal of soil from historic spills from liquid consolidation.

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

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Container Storage Areas Certification of Closure (CS_07-1)

| | | |
|--|-------------------|-------|
| Number of units requiring certification of closure | 1 | Units |
| Cost of certification of closure per unit | \$3,549.72 | |
| TOTAL COST OF CERTIFICATION OF CLOSURE | \$3,549.72 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

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Backfill and Grading Summary (BF_01-1)

| | |
|--|-------------------|
| Backfilling Excavated Areas (BF-02) | \$9,399.60 |
| Grading to Provide Positive Slope (BF-03) | \$0.00 |
| Backfilling Storage, Process, and Containment Pits (BF-04) | \$0.00 |
| TOTAL COST OF BACKFILL AND GRADING | \$9,399.60 |

Backfilling Excavated Areas (BF_02-1)

VOLUME OF EXCAVATED AREA

| | | |
|---|--------|-----|
| Volume | 427.8 | yd3 |
| Compaction factor | 0.2500 | |
| Volume of additional fill required because of compaction factor | 107.0 | yd3 |
| Total volume of fill needed | 534.8 | yd3 |

BACKFILL AREA

| | | |
|---|-------------------|---------|
| Labor, material, and equipment cost per yd3 | \$16.77 | per yd3 |
| Subtotal of labor, material, and equipment cost to backfill | \$8,968.60 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF BACKFILL | \$9,399.60 | |

Cover Installation Inventory (CI_01-1)

AREA OF COVER

| | | |
|----------------------|-------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Area of Cover | 225.0 | ft2 |
| Area of Cover in yd2 | 25.0 | yd2 |

VOLUME OF UNDIFFERENTIATED FILL

| | | |
|-----------------------------|---------|-----|
| Thickness of Fill Layer | 6.0 | ft |
| Volume of Fill Layer | 1,350.0 | ft3 |
| Volume of Fill Layer in yd3 | 50.0 | yd3 |

VOLUME OF CLAY LAYER

| | | |
|-----------------------------|-----|-----|
| Thickness of Clay Layer | 0.0 | ft |
| Volume of Clay Layer | 0.0 | ft3 |
| Volume of Clay Layer in yd3 | 0.0 | yd3 |

VOLUME OF SAND OR GRAVEL

| | | |
|---------------------------------------|-----|-----|
| Thickness of Sand or Gravel Layer | 0.0 | ft |
| Volume of Sand or Gravel Layer | 0.0 | ft3 |
| Volume of Sand or Gravel Layer in yd3 | 0.0 | yd3 |

VOLUME OF EARTHEN LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Earthen Layer | 0.0 | ft |
| Volume of Earthen Layer | 0.0 | ft3 |
| Volume of Earthen Layer in yd3 | 0.0 | yd3 |

VOLUME OF TOPSOIL LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Topsoil | 0.0 | ft |
| Volume of Topsoil Layer | 0.0 | ft3 |
| Volume of Topsoil Layer in yd3 | 0.0 | yd3 |

Cover Installation Summary (CI_02-1)

| | | |
|---|------------|---|
| Installation of Undifferentiated Fill (CI-03) | \$1,292.00 | |
| Installation of Clay Layer (CI-04) | \$0.00 | |
| Installation of Geomembrane (CI-05) | \$0.00 | |
| Installation of Drainage Layer (CI-06) | \$0.00 | |
| Installation of Earthen Layer (CI-07) | \$0.00 | |
| Installation of Topsoil (CI-08) | \$0.00 | |
| Establishment of Vegetative Cover (CI-09) | \$0.00 | |
| Installation of Colloid Clay Liner (CI-10) | \$0.00 | |
| Installation of Asphalt Cover (CI-11) | \$0.00 | |
| Subtotal of Closure Costs | \$1,292.00 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$129.20 | |
| Survey Plat (CI-12) | \$0.00 | |
| Subtotal | \$1,421.20 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$284.24 | |
| TOTAL COST OF COVER | \$1,705.44 | |

Installation of Undifferentiated Fill (CI_03-1)

PURCHASE AND DELIVERY OF UNDIFFERENTIATED FILL

| | | |
|--|----------|---------|
| Volume of undifferentiated fill required | 50.0 | yd3 |
| Cost of undifferentiated fill per yd3 | \$10.00 | per yd3 |
| Subtotal of cost to purchase undifferentiated fill | \$500.00 | |
| Cost of delivery of undifferentiated fill per yd3 | \$5.73 | per yd3 |
| Subtotal of cost to deliver undifferentiated fill | \$286.50 | |
| Cost to Purchase and Deliver Undifferentiated Fill | \$786.50 | |

SPREADING OF UNDIFFERENTIATED FILL LAYER

| | | |
|--|------------|---------|
| Labor and equipment cost per yd3 to spread undifferentiated fill | \$1.49 | per yd3 |
| Subtotal of labor and equipment cost to spread undifferentiated fill | \$74.50 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| Cost to Spread Undifferentiated Fill Layer | \$505.50 | |
| TOTAL COST OF INSTALLATION OF UNDIFFERENTIATED FILL LAYER | \$1,292.00 | |

Decontamination Summary (DC_01-1)

| | |
|---|-------------|
| Decontamination of Unit by Steam Cleaning or Pressure Washing (DC-02) | \$34,119.05 |
| Decontamination of Unit by Sandblasting (DC-03) | \$0.00 |
| Decontamination of Heavy Equipment (DC-04) | \$3,042.15 |
| TOTAL COST OF DECONTAMINATION | \$37,161.20 |

Decontamination by Steam Cleaning or Pressure Wash (DC_02-1)

| | | |
|---|--------------------|--------------------|
| Area of unit to be decontaminated | 10,051.0 | ft2 |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$83.81 | per Work Hour |
| Work rate to steam clean or pressure wash one ft2 | 0.0405 | Work hr per ft2 |
| Number of hours required to steam clean or pressure wash the unit | 407.1 | Work hrs |
| Subtotal of labor and equipment costs to decontaminate unit by steam cleaning or pressure washing | \$34,119.05 | |
| Ratio of decontamination fluid to area | 1.0 | gals per ft2 |
| Volume of decontamination fluid generated | 10,051.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| TOTAL COST OF DECONTAMINATION OF UNIT BY STEAM CLEANING OR PRESSURE WASHING | \$34,119.05 | |

Decontamination of Heavy Equipment (DC_04-1)

| | | |
|---|--------------------|---------------|
| Number of hours needed to decontaminate all heavy equipment | 0.0 | Work hrs |
| Cost of steam cleaner rental per hour | \$7.52 | per Hour |
| Subtotal of steam cleaner rental costs | \$0.00 | |
| Choose the appropriate level of PPE | Protection Level C | |
| Labor and equipment cost per hour | \$86.79 | per Work Hour |
| Subtotal of labor costs to decontaminate by steam cleaning | \$0.00 | |
| Ratio of decontamination fluid to hour | 100.0 | gals per hr |
| Volume of decontamination fluid generated | 0.0 | gal |
| Decontamination fluid container type: | | Bulk |
| Number of drums required to contain decontamination fluid for removal | 0 | Drums |
| Cost of one drum | \$72.28 | per Drum |
| Cost of drums needed to contain decontamination fluid | \$0.00 | |
| Cost of construction of temporary decontamination area for heavy equipment. | \$1,983.53 | |
| Cost of demolition of temporary decontamination area for heavy equipment. | \$1,058.62 | |
| TOTAL COST OF DECONTAMINATION OF HEAVY EQUIPMENT | \$3,042.15 | |

Sampling and Analysis Inventory (SA_01-1)

| | | |
|--|---|-----------------|
| Number of Drilling and Subsurface Soil Samples (2.5-inch boring) | 8 | Samples |
| Number of Drilling and Subsurface Soil Samples (4-inch boring) | 8 | Samples |
| Number of Concrete Core Samples | 4 | Samples |
| Number of Wipe Sample Locations | 0 | Sample Location |
| Number of Surface Water and Liquid Sample Locations | 0 | Sample Location |
| Number of Soil, Sludge, and Sediment Soil Samples | 0 | Sample Location |
| Number of Groundwater Sample Locations | 0 | Sample Location |
| Number of Lysimeters to be Sampled | 0 | Lysimeters |

Notes: Assume 4 concrete cores with soil samples at 1 ft and 2 ft equals 8 samples
Assume 8 soil samples along outer edge assume removal of soil 10 ft x 10 ft x 8 ft due to liquids consolidation

Sampling and Analysis Summary (SA_02-1)

| | |
|---|-------------|
| Drilling and Subsurface Soil Sample - 2.5-Inch-Diameter-Holes (SA-03) | \$31,280.11 |
| Drilling and Subsurface Soil Sample - 4-Inch-Diameter-Holes (SA-04) | \$0.00 |
| Concrete Core Sample (SA-05) | \$0.00 |
| Wipe Sample (SA-06) | \$0.00 |
| Surface Water and Liquid Sample (SA-07) | \$0.00 |
| Soil, Sludge, and Sediment Sample (SA-08) | \$0.00 |
| Groundwater Sample (SA-09) | \$0.00 |
| Soil-Pore Liquid Sample (SA-10) | \$0.00 |
| Analysis of Subsurface Soil Sample (SA-11) | \$17,912.72 |
| TOTAL SAMPLING AND ANALYSIS COST | \$49,192.83 |

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03-1)

DRILLING AND SUBSURFACE SOIL SAMPLE COSTS - 2.5-INCH-DIAMETER-HOLES

| | | |
|--|----------------------------|----------------|
| Number of borings to be drilled | 8 | Borings |
| Enter depth of boreholes (sum of all) | 5 | ft |
| Choose the appropriate drilling method | Auger Boring - Level C | |
| Labor and equipment cost per work hour | \$126.10 | per Work Hour |
| Choose the appropriate drilling method | Hollow-Stem Auger 2.5-Inch | |
| Work rate to drill 2.5-inch-diameter hole | 0.3050 | Work hr per Ft |
| Number of hours required to drill 2.5-inch diameter hole | 1.5 | Work hrs |
| Cost of Drilling 2.5-Inch Borings per Sampling Event | \$189.15 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|-------------|-----------|
| Cost of Analysis per Sampling Event | \$31,090.96 | per Event |
|-------------------------------------|-------------|-----------|

SAMPLING EVENTS

| | | |
|---|-------------|-----------|
| Number of sampling events | 1 | Events |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES | \$31,280.11 | |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES PER EVENT | \$31,280.11 | per Event |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

02/03/2022

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03)
Cost of Analysis per Sampling Event

| Method | Standard | Qty | Quick | Qty | Total | |
|--|----------|----------|-------|------------|-------|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 16 | \$199.14 | 0 | \$1,593.12 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 16 | \$381.10 | 0 | \$3,048.80 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 16 | \$58.36 | 0 | \$466.88 |
| Metals (SW 6010), per each metal | Both | \$13.73 | 200 | \$27.46 | 0 | \$2,746.00 |
| Nonhalogenated volatile organics (SW 5030/SW 8015) | Both | \$110.00 | 16 | \$220.00 | 0 | \$1,760.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 16 | \$430.00 | 0 | \$3,440.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 16 | \$316.72 | 0 | \$2,533.76 |
| Phenols (SW 9065) | Both | \$39.01 | 16 | \$78.02 | 0 | \$624.16 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 16 | \$221.70 | 0 | \$1,773.60 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 16 | \$1,138.50 | 0 | \$9,108.00 |
| Total petroleum hydrocarbons (SW 5030/SW 8015) | Solid | \$60.96 | 16 | \$121.92 | 0 | \$975.36 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 16 | \$377.66 | 0 | \$3,021.28 |

Concrete Core Samples (SA_05-1)

COLLECTION OF CORE SAMPLES

| | | |
|--|----------|---------------------|
| Number of corings to be drilled | 4 | Coring Samples |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per work hour | \$96.68 | per Work Hour |
| Work rate to drill each core sample to a 6-inch depth | 1.0000 | Work hrs per Sample |
| Number of hours required to drill 3-inch-diameter boring | 4.0 | Work hrs |
| Cost of Collection per Sampling Event | \$386.72 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|------------|-----------|
| Cost of Analysis per Sampling Event | \$7,639.96 | per Event |
|-------------------------------------|------------|-----------|

SAMPLING EVENTS

| | | |
|--|---------------|---------------|
| Number of sampling events | 0 | Events per yr |
| TOTAL COST OF SAMPLING AND ANALYSIS OF CORE SAMPLES | \$0.00 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

02/03/2022

**Concrete Core Samples (SA_05)
Cost of Analysis per Sampling Event**

| Method | | Standard | Qty | Quick | Qty | Total |
|--|-------|-----------------|------------|--------------|------------|--------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 4 | \$199.14 | 0 | \$398.28 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 4 | \$58.36 | 0 | \$116.72 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 4 | \$391.40 | 0 | \$782.80 |
| Metals, flame, per each (SW 7000s) | Both | \$13.73 | 100 | \$27.46 | 0 | \$1,373.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 4 | \$430.00 | 0 | \$860.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 4 | \$316.72 | 0 | \$633.44 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 4 | \$221.70 | 0 | \$443.40 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 4 | \$1,138.50 | 0 | \$2,277.00 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 4 | \$377.66 | 0 | \$755.32 |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

02/03/2022

Analysis of Subsurface Soil Samples (SA_11-1)

ANALYSIS OF SUBSURFACE SOIL SAMPLES

| | | |
|--|--------------------|-----------|
| Enter the number of sampling events | 1 | Events |
| Cost of analysis per sampling event for subsurface soil sample | \$17,912.72 | per Event |
| TOTAL COST OF ANALYSIS OF SUBSURFACE SOIL SAMPLES | \$17,912.72 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** HWMU3

02/03/2022

Analysis of Subsurface Soil Samples (SA_11)

Cost of analysis per sampling event for subsurface soil sample

| Method | Standard | Qty | Quick | Qty | Total | |
|--|----------|----------|-------|------------|-------|------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 8 | \$199.14 | 0 | \$796.56 |
| Chlorinated hydrocarbons (SW 3550/SW 8120/SW 8121) | Solid | \$190.55 | 8 | \$381.10 | 0 | \$1,524.40 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 8 | \$58.36 | 0 | \$233.44 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 8 | \$391.40 | 0 | \$1,565.60 |
| Metals, flame, per each (SW 7000s) | Both | \$13.73 | 200 | \$27.46 | 0 | \$2,746.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 8 | \$430.00 | 0 | \$1,720.00 |
| Pesticides/PCBs (SW 3550/SW 8080) | Solid | \$158.36 | 8 | \$316.72 | 0 | \$1,266.88 |
| Phenols (SW 3550/SW 8040) | Solid | \$77.59 | 8 | \$155.18 | 0 | \$620.72 |
| Polynuclear aromatic hydrocarbons (SW 3550/SW 8100) | Solid | \$110.85 | 8 | \$221.70 | 0 | \$886.80 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 8 | \$1,138.50 | 0 | \$4,554.00 |
| Total petroleum hydrocarbons (SW 5030/SW 8015) | Solid | \$60.96 | 8 | \$121.92 | 0 | \$487.68 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 8 | \$377.66 | 0 | \$1,510.64 |

Treatment and Disposal Summary (TD_01-1)

| | |
|--|--------------|
| Treatment and Disposal of Wastes (TD-02) | \$343,600.00 |
| Treatment and Disposal of Decontamination Fluids (TD-03) | \$3,842.22 |
| Total Cost of Treatment and Disposal | \$347,442.22 |

Treatment and Disposal of Waste (TD_02-1)

SOLID WASTE TREATMENT AND DISPOSAL

| | | |
|--|--------|---------|
| Solid Waste Type (Optional: Enter Name) | 0 | |
| Volume in yd3 of solid waste to be treated and disposed of | 0.0 | yd3 |
| Treatment and disposal costs per yd3 | \$0.00 | per yd3 |
| Cost to Treat and Dispose of Solid Waste | \$0.00 | |

LIQUID WASTE TREATMENT AND DISPOSAL

| | | |
|---|-------------|------------|
| Liquid Waste Type (Optional: Enter Name) | Decon | |
| Volume in gallons of liquid waste to be treated and disposed of | 10,300.0 | gal |
| Treatment and disposal costs per gallon | \$4.00 | per Gallon |
| Cost to Treat and Dispose of Liquid Waste | \$41,200.00 | |

DRUMMED WASTE TREATMENT AND DISPOSAL

| | | |
|--|--------------|----------|
| Drummed Waste Type (Optional: Enter Name) | Solvents | |
| Number of drums to be treated and disposed of | 1,512 | Drums |
| Treatment and disposal costs per drum | \$200.00 | per Drum |
| Cost to Treat and Dispose of Drummed Waste | \$302,400.00 | |
| TOTAL COST FOR TREATMENT AND DISPOSAL OF WASTE | \$343,600.00 | |

Treatment and Disposal of Decon Fluid (TD_03-1)

Volume of decontamination fluid generated from closure activities

| | | |
|---|-------------------|--------------------|
| Volume of decontamination fluid from Primary Unit | 0.0 | gal |
| Volume of decontamination fluid generated by steam cleaning or pressure washing (DC-02) | 10,051.0 | gal |
| Volume of decontamination fluid from heavy equipment (DC-04) | 0.0 | gal |
| Total Volume of Decontamination Fluid | 10,051.0 | gal |
| Choose the appropriate level of PPE | | Protection Level C |
| Labor and equipment cost per hour | \$98.54 | per Work Hour |
| Work rate to pump decontamination fluid to a holding tank | 0.0001 | Work hr per gal |
| Number of hours required to pump decontamination fluid to a holding tank | 1.0051 | Work hrs |
| Subtotal of labor and equipment costs to pump decontamination fluid to a holding tank | \$99.04 | |
| Number of days required to rent a holding tank | 1 | Days |
| Holding tank rental fee (10,000 gal tank per day) | \$162.92 | per Day |
| Number of tanks required | 2 | Tanks |
| Subtotal of tank rental costs | \$325.84 | |
| Cost for treatment and disposal | \$0.34 | per Gallon |
| Treatment and disposal costs for bulk liquid | \$3,417.34 | |
| TOTAL COST TO TREAT AND DISPOSE OF DECONTAMINATION FLUID AS A BULK LIQUID | \$3,842.22 | |

Transportation of Waste (TR_01-1)

TRANSPORTATION OF WASTE IN DRUMS

| | | |
|---|-------------|---------------|
| Number of drums of waste | 1,512 | Drums |
| Number of truckloads needed to transport waste in drums | 19 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of 55-gallon drums | \$2,256.00 | per Truckload |
| Cost to Transport Waste in Drums | \$42,864.00 | |

TRANSPORTATION OF BULK LIQUID

| | | |
|---|------------|---------------|
| Gallons of liquid waste | 10,300.0 | gal |
| Number of truckloads needed to transport bulk free liquid waste | 2 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk liquids | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Liquid Wastes | \$4,512.00 | |

TRANSPORTATION OF BULK WASTE

| | | |
|---|-------------|---------------|
| Number of waste debris boxes | 4 | Containers |
| Number of truckloads needed to transport bulk waste | 4 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 400.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk waste | \$2,256.00 | per Truckload |
| Cost to Transport Bulk Waste | \$9,024.00 | |
| TOTAL COST OF TRANSPORTATION OF WASTE | \$56,400.00 | |

Notes: Assume 4 boxes of debris generated (concrete brooms shovels PPE)

Container Storage Areas Summary (CS_02-1)

| | | |
|---|--------------------|---|
| Removal of Waste (CS-03) | \$0.00 | |
| Demolition and Removal of Pads (CS-04) | \$0.00 | |
| Removal of Process Equipment (CS-05) | \$0.00 | |
| Removal of Soil (CS-06) | \$2,773.98 | |
| Backfill and Grading (BF-01) | \$1,479.12 | |
| Decontamination (DC-01) | \$0.00 | |
| Sampling and Analysis (SA-02) | \$4,924.32 | |
| Monitoring Well Installation (MW-01) | \$0.00 | |
| Transportation (TR-01) | \$0.00 | |
| Treatment and Disposal (TD-01) | \$0.00 | |
| User Defined Cost (UD-01) | \$0.00 | |
| Subtotal of Closure Costs | \$9,177.42 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$917.74 | |
| Certification of Closure (CS-07) | \$3,549.72 | |
| Subtotal | \$13,644.88 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$2,728.98 | |
| Landfill Closure (Cover Installation) (CI-02) | \$1,137.84 | |
| TOTAL COST OF CLOSURE | \$17,511.70 | |

Container Storage Areas Inventory (CS_01-1)

MAXIMUM PERMITTED CAPACITY

| | | |
|--|-------|-----|
| Volume of liquid waste | 500.0 | gal |
| Volume of solid waste | 0.0 | yd3 |
| Percent of loose solid debris | 0.0 | % |
| Percent of drummed solid waste | 0.0 | % |
| Percent of baled waste or other monolithic waste | 0.0 | % |
| Volume of loose solid debris | 0.0 | yd3 |
| Volume of solid waste in drums | 0.0 | yd3 |
| Volume of monolithic waste | 0.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|-----|-----|
| Length (excluding any curbs or berm) | 0.0 | ft |
| Width (excluding any curbs or berm) | 0.0 | ft |
| Surface Area of Containment System Pad | 0.0 | ft2 |
| Surface Area of Containment System Pad in yd2 | 0.0 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM PAD

| | | |
|---|-----|-----|
| Thickness | 0.0 | ft |
| Volume of Containment System Pad | 0.0 | ft3 |
| Volume of Containment System Pad in yd3 | 0.0 | yd3 |

SURFACE AREA OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-----|-----|
| Inside Perimeter | 0.0 | ft |
| Height | 0.0 | ft |
| Surface Area of Containment System Berm | 0.0 | ft2 |
| Surface Area of Containment System Berm in yd2 | 0.0 | yd2 |

VOLUME OF SECONDARY CONTAINMENT SYSTEM BERM

| | | |
|--|-----|-----|
| Thickness | 0.0 | ft |
| Volume of Containment System Berm | 0.0 | ft3 |
| Volume of Containment System Berm in yd3 | 0.0 | yd3 |

SURFACE AREA OF OTHER STRUCTURES

| | | |
|---|-----|-----|
| Surface Area of Other Structures | 0.0 | ft2 |
| Surface Area of Other Structures in yd2 | 0.0 | yd2 |

VOLUME OF OTHER STRUCTURES

| | | |
|----------------------------|-----|-----|
| Volume of Other Structures | 0.0 | yd3 |
|----------------------------|-----|-----|

Facility: AA Sydcol Waste Transfer **Unit:** SWMU
Facility

02/03/2022

VOLUME OF CONTAMINATED SOIL TO BE REMOVED

| | | |
|--|---------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Depth | 6.0 | ft |
| Volume of Contaminated Soil to be Removed | 1,350.0 | ft3 |
| Volume of Contaminated Soil to be Removed in yd3 | 50.0 | yd3 |

AREA OF SITE TO BE GRADED WITHOUT SOIL REMOVAL

| | | |
|---|-------|-----|
| Length | 15.0 | ft |
| Width | 15.0 | ft |
| Area of Site to be Graded Without Soil Removal | 225.0 | ft2 |
| Area of Site to be Graded Without Soil Removal in yd2 | 25.0 | yd2 |

Container Storage Areas Removal of Soil (CS_06-1)

| | | |
|---|------------|--------------------|
| Volume of contaminated soil to be removed | 50.0 | yd3 |
| Choose the appropriate level of PPE | | Protection Level D |
| Labor and equipment cost per work hour | \$92.27 | |
| Work rate required to remove one yd3 | 0.0300 | Work hr per yd3 |
| Number of hours required to remove soil | 1.5 | Work hrs |
| Subtotal of labor and equipment cost to remove soil | \$138.40 | |
| Number of debris box containers needed to hold soil | 3 | Containers |
| Cost of one 20-yd3 -capacity debris box container (rent per week) | \$734.86 | per Container |
| Cost of debris box containers | \$2,204.58 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF REMOVAL OF SOIL | \$2,773.98 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** SWMU

02/03/2022

Container Storage Areas Certification of Closure (CS_07-1)

| | | |
|--|-------------------|-------|
| Number of units requiring certification of closure | 1 | Units |
| Cost of certification of closure per unit | \$3,549.72 | |
| TOTAL COST OF CERTIFICATION OF CLOSURE | \$3,549.72 | |

Backfill and Grading Summary (BF_01-1)

| | |
|--|-------------------|
| Backfilling Excavated Areas (BF-02) | \$1,479.12 |
| Grading to Provide Positive Slope (BF-03) | \$0.00 |
| Backfilling Storage, Process, and Containment Pits (BF-04) | \$0.00 |
| TOTAL COST OF BACKFILL AND GRADING | \$1,479.12 |

Backfilling Excavated Areas (BF_02-1)

VOLUME OF EXCAVATED AREA

| | | |
|---|--------|-----|
| Volume | 50.0 | yd3 |
| Compaction factor | 0.2500 | |
| Volume of additional fill required because of compaction factor | 12.5 | yd3 |
| Total volume of fill needed | 62.5 | yd3 |

BACKFILL AREA

| | | |
|---|------------|---------|
| Labor, material, and equipment cost per yd3 | \$16.77 | per yd3 |
| Subtotal of labor, material, and equipment cost to backfill | \$1,048.12 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| TOTAL COST OF BACKFILL | \$1,479.12 | |

Cover Installation Inventory (CI_01-1)

AREA OF COVER

| | | |
|----------------------|-----|-----|
| Length | 0.0 | ft |
| Width | 0.0 | ft |
| Area of Cover | 0.0 | ft2 |
| Area of Cover in yd2 | 0.0 | yd2 |

VOLUME OF UNDIFFERENTIATED FILL

| | | |
|-----------------------------|-----|-----|
| Thickness of Fill Layer | 0.0 | ft |
| Volume of Fill Layer | 0.0 | ft3 |
| Volume of Fill Layer in yd3 | 0.0 | yd3 |

VOLUME OF CLAY LAYER

| | | |
|-----------------------------|-----|-----|
| Thickness of Clay Layer | 0.0 | ft |
| Volume of Clay Layer | 0.0 | ft3 |
| Volume of Clay Layer in yd3 | 0.0 | yd3 |

VOLUME OF SAND OR GRAVEL

| | | |
|---------------------------------------|-----|-----|
| Thickness of Sand or Gravel Layer | 0.0 | ft |
| Volume of Sand or Gravel Layer | 0.0 | ft3 |
| Volume of Sand or Gravel Layer in yd3 | 0.0 | yd3 |

VOLUME OF EARTHEN LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Earthen Layer | 0.0 | ft |
| Volume of Earthen Layer | 0.0 | ft3 |
| Volume of Earthen Layer in yd3 | 0.0 | yd3 |

VOLUME OF TOPSOIL LAYER

| | | |
|--------------------------------|-----|-----|
| Thickness of Topsoil | 0.0 | ft |
| Volume of Topsoil Layer | 0.0 | ft3 |
| Volume of Topsoil Layer in yd3 | 0.0 | yd3 |

Cover Installation Summary (CI_02-2)

| | | |
|---|----------|---|
| Installation of Undifferentiated Fill (CI-03) | \$0.00 | |
| Installation of Clay Layer (CI-04) | \$0.00 | |
| Installation of Geomembrane (CI-05) | \$0.00 | |
| Installation of Drainage Layer (CI-06) | \$0.00 | |
| Installation of Earthen Layer (CI-07) | \$0.00 | |
| Installation of Topsoil (CI-08) | \$431.00 | |
| Establishment of Vegetative Cover (CI-09) | \$0.00 | |
| Installation of Colloid Clay Liner (CI-10) | \$0.00 | |
| Installation of Asphalt Cover (CI-11) | \$0.00 | |
| Subtotal of Closure Costs | \$431.00 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$43.10 | |
| Survey Plat (CI-12) | \$0.00 | |
| Subtotal | \$474.10 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$94.82 | |
| TOTAL COST OF COVER | \$568.92 | |

Cover Installation Summary (CI_02-1)

| | | |
|---|----------|---|
| Installation of Undifferentiated Fill (CI-03) | \$0.00 | |
| Installation of Clay Layer (CI-04) | \$0.00 | |
| Installation of Geomembrane (CI-05) | \$0.00 | |
| Installation of Drainage Layer (CI-06) | \$0.00 | |
| Installation of Earthen Layer (CI-07) | \$0.00 | |
| Installation of Topsoil (CI-08) | \$431.00 | |
| Establishment of Vegetative Cover (CI-09) | \$0.00 | |
| Installation of Colloid Clay Liner (CI-10) | \$0.00 | |
| Installation of Asphalt Cover (CI-11) | \$0.00 | |
| Subtotal of Closure Costs | \$431.00 | |
| Percentage of Engineering Expenses | 10.0 | % |
| Engineering Expenses | \$43.10 | |
| Survey Plat (CI-12) | \$0.00 | |
| Subtotal | \$474.10 | |
| Percentage of Contingency Allowance | 20.0 | % |
| Contingency Allowance | \$94.82 | |
| TOTAL COST OF COVER | \$568.92 | |

Installation of Topsoil (CI_08-1)

PURCHASE AND DELIVERY OF TOPSOIL

| | | |
|---------------------------------------|---------|---------|
| Volume of topsoil required | 0.0 | yd3 |
| Compaction factor | 0.2500 | |
| Volume of additional topsoil required | 0.0 | yd3 |
| Total volume of topsoil required | 0.0 | yd3 |
| Cost of topsoil per yd3 | \$22.84 | per yd3 |
| Subtotal of cost to purchase topsoil | \$0.00 | |
| Cost of delivery of topsoil per yd3 | \$5.73 | per yd3 |
| Subtotal of cost to deliver topsoil | \$0.00 | |
| Cost to Purchase and Deliver Topsoil | \$0.00 | |

SPREADING AND COMPACTING OF TOPSOIL

| | | |
|---|----------|---------|
| Labor and equipment cost per yd3 to spread topsoil | \$1.62 | per yd3 |
| Subtotal of labor and equipment cost to spread topsoil | \$0.00 | |
| Labor and equipment cost per yd3 to compact topsoil | \$0.34 | per yd3 |
| Subtotal of labor and equipment cost to compact topsoil | \$0.00 | |
| Cost of mobilization and demobilization (flat rate) | \$431.00 | |
| Cost to Spread and Compact Topsoil | \$431.00 | |
| TOTAL COST OF INSTALLATION OF TOPSOIL | \$431.00 | |

Sampling and Analysis Inventory (SA_01-1)

| | | |
|--|---|-----------------|
| Number of Drilling and Subsurface Soil Samples (2.5-inch boring) | 4 | Samples |
| Number of Drilling and Subsurface Soil Samples (4-inch boring) | 0 | Samples |
| Number of Concrete Core Samples | 0 | Samples |
| Number of Wipe Sample Locations | 0 | Sample Location |
| Number of Surface Water and Liquid Sample Locations | 0 | Sample Location |
| Number of Soil, Sludge, and Sediment Soil Samples | 4 | Sample Location |
| Number of Groundwater Sample Locations | 0 | Sample Location |
| Number of Lysimeters to be Sampled | 0 | Lysimeters |

Notes: Sampling of soils at septic tank

Sampling and Analysis Summary (SA_02-1)

| | |
|---|------------|
| Drilling and Subsurface Soil Sample - 2.5-Inch-Diameter-Holes (SA-03) | \$0.00 |
| Drilling and Subsurface Soil Sample - 4-Inch-Diameter-Holes (SA-04) | \$0.00 |
| Concrete Core Sample (SA-05) | \$0.00 |
| Wipe Sample (SA-06) | \$0.00 |
| Surface Water and Liquid Sample (SA-07) | \$0.00 |
| Soil, Sludge, and Sediment Sample (SA-08) | \$4,924.32 |
| Groundwater Sample (SA-09) | \$0.00 |
| Soil-Pore Liquid Sample (SA-10) | \$0.00 |
| Analysis of Subsurface Soil Sample (SA-11) | \$0.00 |
| TOTAL SAMPLING AND ANALYSIS COST | \$4,924.32 |

Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03-1)

DRILLING AND SUBSURFACE SOIL SAMPLE COSTS - 2.5-INCH-DIAMETER-HOLES

| | | |
|--|----------------------------|----------------|
| Number of borings to be drilled | 4 | Borings |
| Enter depth of boreholes (sum of all) | 6 | ft |
| Choose the appropriate drilling method | Auger Boring - Level D | |
| Labor and equipment cost per work hour | \$88.54 | per Work Hour |
| Choose the appropriate drilling method | Hollow-Stem Auger 2.5-Inch | |
| Work rate to drill 2.5-inch-diameter hole | 0.3050 | Work hr per Ft |
| Number of hours required to drill 2.5-inch diameter hole | 1.8 | Work hrs |
| Cost of Drilling 2.5-Inch Borings per Sampling Event | \$159.37 | per Event |

ANALYSIS OF DRILLING SAMPLE

| | | |
|-------------------------------------|------------|-----------|
| Cost of Analysis per Sampling Event | \$2,594.40 | per Event |
|-------------------------------------|------------|-----------|

SAMPLING EVENTS

| | | |
|---|------------|-----------|
| Number of sampling events | 0 | Events |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES | \$0.00 | |
| TOTAL COST OF S&A OF DRILLING AND SUBSURFACE SOIL SAMPLES PER EVENT | \$2,753.77 | per Event |

Facility: AA Sydcol Waste Transfer Facility **Unit:** SWMU

02/03/2022

**Drilling and Subsurface Soil Samples - 2.5-Inch-Diameter-Holes (SA_03)
Cost of Analysis per Sampling Event**

| Method | | Standard | Qty | Quick | Qty | Total |
|--|--------|------------|-----|------------|-----|------------|
| Acidity/Alkalinity (EPA 305.1) | Liquid | \$23.60 | 1 | \$47.20 | 0 | \$23.60 |
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 1 | \$199.14 | 0 | \$99.57 |
| Chromium (SW 7191), with prep | Both | \$29.18 | 1 | \$58.36 | 0 | \$29.18 |
| Corrosivity (SW 1110) | Both | \$47.72 | 1 | \$95.44 | 0 | \$47.72 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 1 | \$391.40 | 0 | \$195.70 |
| EP toxicity, metals (SW 1310) | Both | \$200.16 | 1 | \$400.32 | 0 | \$200.16 |
| Metals screen, 25 metals listed in method (EPA 200.7) | Liquid | \$1,476.00 | 1 | \$2,952.00 | 0 | \$1,476.00 |
| Organophosphorus pesticides (SW 3550/SW 8140/SW 8141) | Solid | \$215.00 | 1 | \$430.00 | 0 | \$215.00 |
| pH (EPA 150.1) | Liquid | \$7.79 | 1 | \$15.58 | 0 | \$7.79 |
| Polynuclear aromatic hydrocarbons, PAH (SW 8310), w/prep | Solid | \$110.85 | 1 | \$221.70 | 0 | \$110.85 |
| Volatile organic analysis (EPA 624) | Liquid | \$188.83 | 1 | \$377.66 | 0 | \$188.83 |

Soil, Sludge, and Sediment Samples (SA_08-1)

COLLECTION OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|--|----------|---------------------|
| Number of sampling locations | 4 | Sample Location |
| Choose the appropriate level of PPE | | Protection Level D |
| Labor and equipment cost per work hour | \$66.88 | per Work Hour |
| Work rate required to collect samples from one sampling location | 1.0000 | Work hrs per Sample |
| Number of hours required to collect all samples | 4.0 | Work hrs |
| Cost of Collection per Sampling Event | \$267.52 | per Event |

ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES

| | | |
|-------------------------------------|------------|-----------|
| Cost of Analysis per Sampling Event | \$4,656.80 | per Event |
|-------------------------------------|------------|-----------|

SAMPLING EVENTS

| | | |
|--|-------------------|--------|
| Number of sampling events | 1 | Events |
| TOTAL COST OF SAMPLING AND ANALYSIS OF SOIL, SLUDGE, AND SEDIMENT SAMPLES | \$4,924.32 | |

Facility: AA Sydcol Waste Transfer Facility **Unit:** SWMU

02/03/2022

**Soil, Sludge, and Sediment Samples (SA_08)
Cost of Analysis per Sampling Event**

| Method | | Standard | Qty | Quick | Qty | Total |
|--|-------|-----------------|------------|--------------|------------|--------------|
| BTEX/gasoline hydrocarbons (mod 8020)(PID/FID), w/prep | Both | \$99.57 | 4 | \$199.14 | 0 | \$398.28 |
| Dioxins & Dibenzofurans (SW 3550/SW 8280) | Solid | \$195.70 | 4 | \$391.40 | 0 | \$782.80 |
| Polynuclear aromatic hydrocarbons (SW 3550/SW 8100) | Solid | \$110.85 | 4 | \$221.70 | 0 | \$443.40 |
| TCLP (RCRA) (SW 1311) | Both | \$569.25 | 4 | \$1,138.50 | 0 | \$2,277.00 |
| Volatile organic analysis (SW 5030/SW 8240) | Both | \$188.83 | 4 | \$377.66 | 0 | \$755.32 |

Facility: AA Sydcol Waste Transfer Facility **Unit:** SWMU

02/03/2022

Treatment and Disposal Summary (TD_01-1)

| | |
|--|--------|
| Treatment and Disposal of Wastes (TD-02) | \$0.00 |
| Treatment and Disposal of Decontamination Fluids (TD-03) | \$0.00 |
| Total Cost of Treatment and Disposal | \$0.00 |

Transportation of Waste (TR_01-1)

TRANSPORTATION OF WASTE IN DRUMS

| | | |
|---|------------|---------------|
| Number of drums of waste | 0 | Drums |
| Number of truckloads needed to transport waste in drums | 0 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 300.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of 55-gallon drums | \$1,692.00 | per Truckload |
| Cost to Transport Waste in Drums | \$0.00 | |

TRANSPORTATION OF BULK LIQUID

| | | |
|---|------------|---------------|
| Gallons of liquid waste | 0.0 | gal |
| Number of truckloads needed to transport bulk free liquid waste | 0 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 300.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk liquids | \$1,692.00 | per Truckload |
| Cost to Transport Bulk Liquid Wastes | \$0.00 | |

TRANSPORTATION OF BULK WASTE

| | | |
|---|---------------|---------------|
| Number of waste debris boxes | 0 | Containers |
| Number of truckloads needed to transport bulk waste | 0 | Truckloads |
| Type of waste | | Hazardous |
| Number of miles | 300.0 | Mi |
| Cost per mile | \$5.64 | per Mile |
| Cost to transport one truckload of bulk waste | \$1,692.00 | per Truckload |
| Cost to Transport Bulk Waste | \$0.00 | |
| TOTAL COST OF TRANSPORTATION OF WASTE | \$0.00 | |

Comparison of AAS FA Amt to CHA, SK-C, and HES

| Site | Container Storage (gallons) | CCE (\$) | | \$/gallon | Notes |
|-----------------------|-----------------------------|-------------|-------------|-----------|---|
| Clean Harbors AZ | 75,000 | \$1,112,117 | (CHA 2021) | 14.8 | No C/A - Facility-wide storage limit (containers only) |
| Safety-Kleen Chandler | 17,160 | \$138,652 | (SK-C 2021) | 8.1 | Containers Only (i.e., tank storage Q/CCE not included) |
| Heritage Environ Svcs | 83,898 | \$1,765,157 | (HES 2021) | 21.0 | Drum storage only - No Rail (Bulk Loading Area) |
| A.A.Sydcol | 176,660 | \$741,663 | (AAS 2021) | 4.2 | AAS Estimate |
| A.A.Sydcol | 176,660 | \$1,869,200 | (ADEQ 2021) | 10.6 | ADEQ Estimate by CostPro - Includes Septic Excavation |

AASydcol - SR3 - Comments on Container Management

Anthony Leverock <leverock.anthony@azdeq.gov>

Mon, Mar 21, 2022 at 12:02 PM

To: "James G. Peck" <james@jgpcn.com>

Cc: Terry Baer <baer.terry@azdeq.gov>, Charles Templer <chuck@sydcn.com>, Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

James -

ADEQ reviewed the revised Closure Cost Estimate (CCE) submitted 3/16/22. AAS increased costs attributable to inventory removal, contingency, and project oversight, and the CCE calculated by AAS is now \$1,548,865. ADEQ accepts this CCE for the purpose of demonstrating financial assurance at the facility.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



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On Wed, Mar 16, 2022 at 4:52 PM James G. Peck <james@jgpcn.com> wrote:

Terry:

As discussed yesterday, we have revised the Sydcn closure plan to include the entire inventory being shipped off-site for disposal in drum containers. Receiving facility destinations are indicated in the closure plan with disposal costs consistent with our original estimate, only priced for drum disposal instead of bulk disposal (attached). We used the \$4.38/drum labor and equipment cost used in the ADEQ Cost Pro estimate to load the drums on to transport, adjusted to \$5.38/drum for inflation from 2012 to 2020 (the entire cost estimate is then adjusted to 2021 costs using the RS Means inflation index).

Our revised total is \$1.55M. Let me know if this acceptable to the Department for FA purposes.

Sincerely,

-James

On 2022-03-15 10:22, Terry Baer wrote:

Sorry James I was on back to back calls yesterday. Is there a time we could chat today? I am opened from Noon till 3:30pm

Thank you,

Terry L Baer

Section Manager Solid/ Hazardous Waste

Ph: 602-771-4503

M: 480-309-7055



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On Mon, Mar 14, 2022 at 10:39 AM James G. Peck <james@jgpcon.com> wrote:

Terry:

I just left you a voice message to discuss the Sydcoll closure plan and closure cost estimate. The major differences we see in the ADEQ cost estimate from our closure plan is in bulking the wastes for transport to the disposal facility as per the closure plan and the cost for disposal of flammables. Disposal for flammables is \$0.99/gal at Veolia when shipped in bulk. This makes up 26% of Sydcoll's inventory, which adds up to a significant cost savings. Bulk disposal rates are also notably less for other waste types when compared with drum disposal, and it would make sense to do this first before shipping to the disposal facility. Particularly if the HWMUs are at capacity.

There were a few minor cost items in the ADEQ estimate that we feel are not part of the facility's operation and are somewhat speculative, and should best be covered by contingency funds. These are relatively minor though compared with the transport and disposal costs.

Does ADEQ have any issues with the Closure Plan including bulking of wastes and shipping flammables to Veolia?

Sincerely,

-James

On 2022-03-11 14:35, Anthony Leverock wrote:

Thank you for that info and the update.

I will be sending you a pre-draft of the permit early next week - either Monday or Tuesday. However, I want to make it clear that we still need to reach a consensus concerning the closure cost estimate and associated financial assurance. **Terry Baer has reached out to you to discuss this further. Please contact him as soon as possible.** Also, as we have already discussed the pre-draft will need the design engineer's design specs and sealed diagrams for the pads, which are projected to be available Tuesday or Wednesday. We need consensus on the strength of the concrete.

FYI, I am currently updating the WAP you provided. ADEQ has added some text in the Waste Compatibility Section. A simple table of generalized waste compatibility, (taken from the 40 hour ADOSH course we attended) has been added as Table 6, and a new Appendix D has been added for additional resources - App D contains a more detailed figure on compatibility. It was prepared by the Naval Occupational Safety & Health and Environmental Training Center - Incompatible Materials Chart (taken from the ADOSH 8-hour refresher training), and a publicly available resource prepared by Hatayama et al, and formally adopted by EPA as EPA-600/2-80-076 presenting a method for determining hazardous waste compatibility, were added to the WAP. These references are not mandatory, but are references. In my discussions with Robin Thomas and with EPA R9, these references are good to have available, especially since AAS will be conducting bulking and consolidation activities. They should also be included as review guides for workers and management who are performing or overseeing the initial assessment for

workers and management who are performing or overseeing the initial assessment for waste compatibility and determining the proper location for storage of potentially incompatible wastes, for performing the bucket test for waste compatibility for bulking and consolidation, and for repackaging of lab packs (I am not sure if that more complex type of task is contemplated to be done at the facility).

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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On Fri, Mar 11, 2022 at 3:05 PM James G. Peck <james@jgpcon.com> wrote:

Anthony:

A couple of last-minute edits:

- I did not add the provision to move received wastes to a HWMU within 24 hours in the last version of the Container Management Plan. It has been added to Section 3.1 in the attached version.
- Sydcoll may use a drum web to manage bulging drums, so this has been added to Section 5.1 of the Procedures to Prevent Hazards.

As for the Training Manager and the Compliance Manager, Sydcoll does not have the personnel on staff at this point, but will have hired people for these positions prior to operating.

Word documents to be sent to you shortly.

Sincerely,

-James

On 2022-02-25 17:05, Anthony Leverock wrote:

James -

Regarding the CMP (Att D)

Something that I noticed in the 2/14/22 revised Container Management Plan. It is important that we have a timeframe for moving containers to the proper storage areas following Waste Receipt. This ensures that the waste that has AAS as the designated facility goes from initial receipt to one of the three HWMUs within a specified period of time. Where should that timeframe be specified? I think it should be specified in the CMP. In our permit draft I am assuming it is in Section 3.1, before the text that describes the timeframe for the determination of acceptability / resolution of discrepancies. This is what we propose for Section 3.1

3.1 Initial Inspection and Waste Classification

All incoming waste undergoes waste acceptance procedures in accordance with the procedures described in the WAP. This includes an inspection of the shipment, including containers, lab packs, and tanker trucks; review of the waste manifest, pre-acceptance waste profile information, and other information with the manifest; and conducting fingerprint analyses to verify waste characteristics as applicable. The waste acceptance analysis may include additional sampling of the waste materials for laboratory testing. The Facility Manager is responsible for directing where the containers are to be stored at the Facility.

Waste that is received at the Facility (Waste Receipt) will be directed to an HWMU for storage within 24 hours of its arrival (**unless an extension has been granted by ADEQ**). <<<<----- the part in bold is optional, not sure if this is wanted/needed.

Sydcoll will make a determination of acceptability within 30 days of receipt of waste. If circumstances necessitate more than 30 days, Sydcoll will document the reasons for the additional time. All wastes rejected will be sent to an alternative

facility or returned to the generator within 60 days of the rejection.

FYI, the Permit already has definitions for Waste Receipt and Waste Acceptance. The definitions are:

23. Waste Acceptance refers to the time when hazardous waste that is designated for storage at the Facility is permitted within its secured boundary and has passed the Permittee's determination of acceptability. Waste Acceptance does not apply to hazardous waste that will be temporarily held at a transfer facility located at the Facility, for less than the timeframe allowed by the timeframe specified in R18-8-263.A (40 CFR 263.12) (Transfer Facility Requirements).

24. Waste Receipt means hazardous waste that has been received at the Facility. It refers to the time when hazardous waste that is designated for storage at the Facility is first allowed within its secured boundary. Waste Receipt does not include the time for evaluating waste acceptance as described in this Permit. Waste Receipt does not apply to any hazardous waste that will be temporarily held at a transfer facility located at the Facility, for less than the timeframe allowed by R18-8-263.A (40 CFR 263.12) (Transfer Facility Requirements).

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



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On Wed, Feb 23, 2022 at 4:41 PM Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James -

As a follow-up to your response to our SR comments on the Container Management Plan. In order to proceed with the drafting of the permit we will need to have clarification on these items.

Comment 8 b - When will AASydcol submit the engineering plans for HWMU1 / 2 with the curb?

Comment 8 c - Same question

Comment 8 d - Same question

Comment 9 - Same question

Comment 15 b - Your response proposes to use the UTS as a presumptive bright line for contaminated media. At this time I am not sure this will be acceptable. For now, I am checking on this with other permit writers for guidance; however, it is my thought that the UTS really are technical requirements for hazardous constituents to determine when the waste may be disposed of following some form of treatment, but it isn't based on a health impact. I note that finding suitable EPA guidance on how to perform contained-in determinations is difficult, but I believe it must be directly compared to some type of health impacts. Your proposal of a presumptive criteria would likely be OK, assuming a pre-defined management scenario (e.g., discharge on the site as dust suppressant), but the health impact is not there. Since groundwater is so shallow, one scenario would be that the discharge may not contaminate groundwater above MCLs, but the list of constituents on the MCL list is short, so a more comprehensive list must be used. One such list is the list of EPA's RSL's for tapwater at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables> I have attached a EPA guidance that discusses contained-in determinations and the EPA RSL tables for tapwater in excel format - I am not able to download the pdf of the table for some reason. The basis for the RSLs is residential, 10-6 exposure and a Hazard Index of 1.0. Please review and provide your thoughts on the applicability of this table for contained-in determinations.

Comment 18 - Thank you. This is an item that can be fleshed out later, but for now, please clarify if AASydcol's electronic database that is referenced is already developed or if it is already in existence but it requires modification, as well as what the timing would be for such development or modification. Reason for this question is to include sufficient time in a schedule of compliance permit condition for the details on the report and where it will be made available for emergency responders, etc., and when AASydcol may be able to produce the report for the emergency responders.

Comment 21 a - Thank you for the clarification. For now, AASydcol has made the decision not to accept wastes that are lithium ion batteries, and we note your provision regarding the management of HHW, and that HHW including any LION batteries will be stored on HWMU3. AA Sydcol will need to modify the permit at a later date to add LION batteries to the hazardous wastes so that they are no longer prohibited. No response is required, but we request an acknowledgment of this follow-up item.

Comment 21 b - May need to update the procedures to prevent hazards to add the ABC fire extinguisher that will be posted near the batteries storage location, unless there already is one located there. Clarify if this is needed or provide

an acknowledgment of this follow-up item.

Please provide the requested information and/or acknowledgments by March 4, 2022.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



azdeq.gov

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On Mon, Feb 14, 2022 at 6:10 PM James G. Peck <james@jgpcon.com> wrote:

Anthony:

Attached is Sydcol's response to ADEQ's comments in SR3 regarding the facility's general information and container management plan as well as the revised plans. Two of the responses are awaiting review by the structural engineer preparing plan sheets for the new HWMU pads. Otherwise the response is complete.

Sincerely,

-James

On 2022-02-03 16:39, Anthony Leverock wrote:

James -

Enclosed are ADEQ's comments on AASydcol's permit application for container management
ADEQ requests a response by 2/11/22.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



azdeq.gov

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Starr Indemnity & Liability Company

BestLink 

AMB #: 013853 NAIC #: 38318 FEIN #: 751670124

Administrative Office

399 Park Avenue
New York, New York 10022

[United States](#)

Web: www.starrcompanies.com

Phone: 646-227-6300

Fax: 646-227-6620

[View Additional Address Information](#)

AM Best Rating Unit: [AMB #: 018756 - Starr International Group](#)

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Financial Strength [View Definition](#)

| | |
|----------------------------------|-------------------|
| Rating (Rating Category): | A (Excellent) |
| Outlook (or Implication): | Stable |
| Action: | Affirmed |
| Effective Date: | November 05, 2021 |
| Initial Rating Date: | May 29, 2008 |

Best's Credit Rating Analyst

Rating Office: A.M. Best Rating Services, Inc.
Senior Financial Analyst: Michael T. Venezia
Director: Erik Miller

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Long-Term Issuer Credit [View Definition](#)

| | |
|----------------------------------|-------------------|
| Rating (Rating Category): | a (Excellent) |
| Outlook (or Implication): | Positive |
| Action: | Affirmed |
| Effective Date: | November 05, 2021 |
| Initial Rating Date: | May 29, 2008 |

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Financial Strength Rating

| Effective Date | Rating |
|-------------------|--------|
| November 05, 2021 | A |
| December 11, 2020 | A |
| March 19, 2020 | A |
| March 14, 2019 | A |
| March 15, 2018 | A |
| March 16, 2017 | A |

Long-Term Issuer Credit Rating

| Effective Date | Rating |
|-------------------|--------|
| November 05, 2021 | a |
| December 11, 2020 | a |
| March 19, 2020 | a |
| March 14, 2019 | a |
| March 15, 2018 | a |
| March 16, 2017 | a |

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| AMB # | Company Name | Company Description |
|------------------------|---|---|
| 093224 | Starr Indemnity & Liability Co (ARB) | Represents the Property/Casualty financials for the Argentina Branch of this legal entity. |
| 093225 | Starr Indemnity & Liability Co (JPB) | Represents the Property/Casualty financials for the Japan Branch of this legal entity. |
| 018756 | Starr International Group (G) Rating Unit | Represents the AM Best Consolidated financials for the Property/Casualty business of this legal entity. |
| 019158 | Starr International Group (CS) | Represents Property/Casualty business of this legal entity. |

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[Best's Credit Report](#) - financial data included in Best's Credit Report reflects the data used in determining the current credit rating(s) for AM Best Rating Unit: AMB #: [018756 - Starr International Group](#).



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| <u>Date</u> | <u>Title</u> |
|--------------|--|
| Nov 05, 2021 | AM Best Revises Issuer Credit Rating Outlook to Positive for Starr International Company Inc.'s Insurance Subsidiaries |
| Dec 11, 2020 | AM Best Affirms Credit Ratings of Starr International Company Inc.'s Insurance Subsidiaries |
| Mar 19, 2020 | AM Best Affirms Credit Ratings of Starr International Company Inc.'s Insurance Subsidiaries |
| Mar 15, 2019 | A.M. Best Affirms Credit Ratings of Starr International Company, Inc.'s Insurance Subsidiaries |
| Aug 23, 2017 | A.M. Best Assigns Credit Ratings to Starr Specialty Insurance Company. |
| Jul 16, 2014 | A.M. Best Assigns Ratings to Starr Property & Casualty Insurance (China) Company, Limited |
| May 29, 2008 | A.M. Best Assigns Ratings to Starr Indemnity & Liability Company. |

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Information Concerning Liability Insurance Provider

5 messages

Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Mar 24, 2022 at 2:16 PM

To: "James G. Peck" <james@jgpcn.com>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>

James -

- Is a commitment from the insurer ok at this point? Sydcoll doesn't want to buy the policy until the permit is issued, which should seemingly be ok as long as the policy provisions requested by ADEQ are met in the commitment.

Yes, a commitment from the insurer will be fine. The rules require that the policy (be it for closure costs or for liability) be issued 60 days before the date that hazardous waste is to be received at the facility (40 CFR 264.147(a)(1)(i) for the liability language). Also, the draft permit we are preparing clarifies when the insurance for closure costs is due, and that it is a permit modification -- we can include similar language concerning the change to the liability policy. We can add a schedule of compliance permit condition that clarifies this for updating the policy so that it complies with the regulatory language.

- Will the permit allow flexibility in the FA mechanism? Sydcoll may wish to obtain a letter of credit at some point from their financial institution to meet the FA obligation.

I assume this question is concerning the FA mechanism for closure, but actually this response is true for both the FA for closure and the FA for liability coverage (virtually all companies use insurance for liability coverage, unless they are very large firms in which case they still opt for insurance, but then it becomes a form of self-insurance/captive insurance). So, yes, that is not a problem, but it would be subject to permit modification requirements. A change to the mechanism requires review...for example, verifying the language of the LOC and a check on the bank issuing the LOC; further, an LOC requires establishment of a stand-by trust, so we review the language of the trust, and we conduct a check on the trustee and / or the institution -- the other FA mechanisms have similar review requirements.

- Could the cost estimate balance be met with two or more FA instruments? Sydcoll may wish to assure a portion of the cost through a letter of credit and the balance through insurance.

Yes, two instruments may be used. ADEQ has adopted the financial assurance rules as contained in the federal rules. 40 CFR 264.143(g) discusses multiple instruments -- the rule only allows this for trusts, surety bonds (but not performance bonds), LOCs, and insurance. So, those combinations are OK -- also, multiple trusts, multiple bonds, multiple LOCs, and multiple insurance policies may be used. Corporate guarantees, financial tests, and performance bonds cannot be used for situations where the facility wants to go with multiple instruments). As I recall, we have never had a permitted TSD facility that uses multiple instruments. FYI, I think EPA has emphasized that if a permit applicant wants to go with multiple instruments, their submittal must designate the instrument that is considered to be primary and the instrument that is secondary. For the example you provided I expect that the LOC would be primary and the insurance would provide secondary coverage.

I hope that helps.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



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On Thu, Mar 24, 2022 at 1:01 PM James G. Peck <james@jgpcon.com> wrote:

Anthony:

I'm forwarding to you the latest email I've received from Sydcoll regarding the FA status. It looks like the insurer thinks that it would take most of this week to get the new policy drafted up, which hopefully means we will have it to you on or before March 31.

A couple of questions have come up:

- Is a commitment from the insurer ok at this point? Sydcoll doesn't want to buy the policy until the permit is issued, which should seemingly be ok as long as the policy provisions requested by ADEQ are met in the commitment.
- Will the permit allow flexibility in the FA mechanism? Sydcoll may wish to obtain a letter of credit at some point from their financial institution to meet the FA obligation.
- Could the cost estimate balance be met with two or more FA instruments? Sydcoll may wish to assure a portion of the cost through a letter of credit and the balance through insurance.

Sincerely,

-James

----- Original Message -----

Subject:RE: Fw: Information Concerning Liability Insurance Provider

Date:2022-03-21 11:13

From:Chuck Templer <ctempler@iwu.com>

To:"James G. Peck" <james@jgpcon.com>

Cc:Juvi Remitio <jremitio@cox.net>

Just got the update, it may take most of this week to get the insurance finalized due to the separate policy requirement.

From: James G. Peck <james@jgpcon.com>

Sent: Monday, March 21, 2022 10:47 AM

To: Chuck Templer <ctempler@iwu.com>

Cc: Juvi Remitio <jremitio@cox.net>

Subject: Re: Fw: Information Concerning Liability Insurance Provider

Chuck/Juvi:

I believe the financial assurance information is the only thing outstanding at this point.

Sincerely,

-James

On 2022-03-18 10:55, Chuck Templer wrote:



From: Ralph Molyneux <ralph@wgbib.com>

Sent: Friday, March 18, 2022 9:02 AM

Sent: Friday, March 18, 2022 9:22 AM

To: Chuck Templer <ctempler@iwu.com>

Cc: Dawn Stephens CIC <DStephens@wgbib.com>

Subject: RE: Information Concerning Liability Insurance Provider

Good morning,

Nice to see the progress being made.

Let me review this with the underwriter to address the limit requirements, Starr license number, and confirm the contact information we can give to ADEQ for policy questions. No problem confirming the AM Best Rating (Starr is "A" rated, size category XV) and the other items requested.

I'll get back to you ASAP.

Ralph Molyneux, CPCU | Senior Vice President, Environmental Practice Leader
Direct 714.824.8358 | Mobile 949.500.7960 | Email ralph@wgbib.com



Burnham WGB Insurance Solutions

15901 Red Hill Avenue | Tustin, California 92780
Office 714.505.7000

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From: Chuck Templer <ctempler@iwu.com>

Sent: Thursday, March 17, 2022 8:02 PM

To: Ralph Molyneux <ralph@wgbib.com>

Subject: Fw: Information Concerning Liability Insurance Provider

Can we do a sample cert as they want with a 4/1 start?

I don't think we will need the coverage for a few months but after 6-7 years at least things are progressing.

Thank you

From: james@jgpcon.com <james@jgpcon.com>

Sent: Thursday, March 17, 2022 7:19 PM

To: Chuck Templer <ctempler@iwu.com>; Juvi Remitio <jremitio@cox.net>

Subject: Fwd: Information Concerning Liability Insurance Provider

Forgot the bcc

Sent by iPhone.

Begin forwarded message:

From: james@jgpcon.com

Date: March 17, 2022 at 7:13:29 PM MST

To: Anthony Leverock <leverock.anthony@azdeq.gov>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

Subject: Re: Information Concerning Liability Insurance Provider

Ok. We will look at this tomorrow. I appreciate the after hours effort Anthony.

Sent by iPhone.

On Mar 17, 2022, at 6:55 PM, Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James -

My apologies for this delayed reply to your submittal concerning the Financial Assurance (Liability) information. In your response to our comments on the liability insurance (Response to SR6 dated 2/18/22 / received by ADEQ 2/22/22), you included in Att D, App F a certificate of insurance from "Starr Indemnity", showing coverage for sudden claims of \$5MM per claim and \$6MM "annual aggregate". The certificate referenced Policy numbers [10000065485211](#) and [1000336422211](#), issued 4/1/21. We require additional information concerning the policy and the insurer. Also, the certificate and/or the policies may require revision.

1) Paragraph 1 of the certificate of liability insurance clarifies that the policy is for sudden and nonsudden accidental occurrences. 40 CFR 264.147(b) states that an applicant who submits a certificate for sudden and nonsudden accidental occurrences shall provide coverage in the amount of \$4MM per occurrence and \$8MM annual aggregate. The certificate provided by AAS therefore complies with the regulations for coverage per occurrence, but it provides insufficient coverage for the annual aggregate. Correct the certificate, and if necessary the policies so that they

the certificates, and if necessary, the policies so that they comply with the regulatory requirement.

2) Provide copies of each policy with all endorsements and riders.

3) Provide information concerning Starr Indemnity, also referred to as Star Indemnity and Liability Company (Starr). The rules at 40 CFR 264.147(a)(1)(ii) say that the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. Provide the State that Starr is licensed to provide insurance in, and provide the license number

4) My review of Starr indicates that its parent Starr International Company has an A M Best rating of A (excellent), as of 11/5/21, but I cannot find a rating for Starr itself. If it exists, verify the A M Best rating for Starr, or indicate if it is the same rating as for Starr International Company.

5) Provide contact info for the insurance company that ADEQ for questions concerning the policy. FYI I searched for "Starr Indemnity and Liability Company on the web and found what I believe to be its website. It states that the claims contact info is claims@starrcompanies.com, telephone 855-782-7725. Verify if this is the correct information for reaching Starr in the event that a claim must be filed. Submit this information by not later than March 31, 2022.

FYI, be aware that upon submittal of the insurance policy information for the closure FA, ADEQ will request the above information for that insurer.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit

Ph: 602-771-4160





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Your feedback matters to ADEQ. Visit azdeq.gov/feedback

James G. Peck <james@jgpcon.com>
To: Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Mar 24, 2022 at 1:01 PM

Anthony:

I'm forwarding to you the latest email I've received from Sydcoll regarding the FA status. It looks like the insurer thinks that it would take most of this week to get the new policy drafted up, which hopefully means we will have it to you on or before March 31.

A couple of questions have come up:

- Is a commitment from the insurer ok at this point? Sydcoll doesn't want to buy the policy until the permit is issued, which should seemingly be ok as long as the policy provisions requested by ADEQ are met in the commitment.
- Will the permit allow flexibility in the FA mechanism? Sydcoll may wish to obtain a letter of credit at some point from their financial institution to meet the FA obligation.
- Could the cost estimate balance be met with two or more FA instruments? Sydcoll may wish to assure a portion of the cost through a letter of credit and the balance through insurance.

Sincerely,

-James

----- Original Message -----

Subject:RE: Fw: Information Concerning Liability Insurance Provider

Date:2022-03-21 11:13

From:Chuck Templer <ctempler@iwu.com>

To:"James G. Peck" <james@jgpcon.com>

Cc:Juvi Remitio <jremitio@cox.net>

Just got the update, it may take most of this week to get the insurance finalized due to the separate policy requirement.

From: James G. Peck <james@jgpcon.com>

Sent: Monday, March 21, 2022 10:47 AM

To: Chuck Templer <ctempler@iwu.com>

Cc: Juvi Remitio <jremitio@cox.net>

Subject: Re: Fw: Information Concerning Liability Insurance Provider

Chuck/Juvi:

I believe the financial assurance information is the only thing outstanding at this point.

Sincerely,

-James

On 2022-03-18 10:55, Chuck Templer wrote:

From: Ralph Molyneux <ralph@wgbib.com>
Sent: Friday, March 18, 2022 9:22 AM
To: Chuck Templer <ctempler@iwu.com>
Cc: Dawn Stephens CIC <DStephens@wgbib.com>
Subject: RE: Information Concerning Liability Insurance Provider

Good morning,

Nice to see the progress being made.

Let me review this with the underwriter to address the limit requirements, Starr license number, and confirm the contact information we can give to ADEQ for policy questions. No problem confirming the AM Best Rating (Starr is "A" rated, size category XV) and the other items requested.

I'll get back to you ASAP.

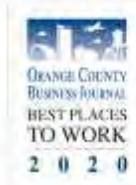
Ralph Molyneux, CPCU | Senior Vice President, Environmental Practice Leader
Direct 714.824.8358 | Mobile 949.500.7960 | Email ralph@wgbib.com



Burnham WGB Insurance Solutions
15901 Red Hill Avenue | Tustin, California 92780
Office 714.505.7000

Powered by Baldwin Krystyn Sherman Partners Insurance Sales, LLC
DBA Burnham WGB Insurance Solutions
CA Insurance License 0F69771

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From: Chuck Templer <ctempler@iwu.com>
Sent: Thursday, March 17, 2022 8:02 PM
To: Ralph Molyneux <ralph@wgbib.com>
Subject: Fw: Information Concerning Liability Insurance Provider

Can we do a sample cert as they want with a 4/1 start?

I don't think we will need the coverage for a few months but after 6-7 years at least things are progressing.

Thank you

From: james@jgpcon.com <james@jgpcon.com>
Sent: Thursday, March 17, 2022 7:19 PM
To: Chuck Templer <ctempler@iwu.com>; Juvi Remitio <jremitio@cox.net>
Subject: Fwd: Information Concerning Liability Insurance Provider

Forgot the bcc

Sent by iPhone.

Begin forwarded message:

From: james@jgpcon.com
Date: March 17, 2022 at 7:13:29 PM MST
To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>
Subject: Re: Information Concerning Liability Insurance Provider

Ok. We will look at this tomorrow. I appreciate the after hours effort Anthony.

Sent by iPhone.

On Mar 17, 2022, at 6:55 PM, Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James -

My apologies for this delayed reply to your submittal concerning the Financial Assurance (Liability) information. In your response to our comments on the liability insurance (Response to SR6 dated 2/18/22 / received by ADEQ 2/22/22), you included in Att D, App F a certificate of insurance from "Starr Indemnity", showing coverage for sudden claims of \$5MM per claim and \$6MM "annual aggregate". The certificate referenced Policy numbers [10000065485211](#) and 1000336422211, issued 4/1/21. We require additional information concerning the policy and the insurer. Also, the certificate and/or the policies may require revision.

1) Paragraph 1 of the certificate of liability insurance clarifies that the policy is for sudden and nonsudden accidental occurrences. 40 CFR 264.147(b) states that an applicant who submits a certificate for sudden and nonsudden accidental occurrences shall provide coverage in the amount of \$4MM per occurrence and \$8MM annual aggregate. The certificate provided

and per-occurrence aggregate. The certificate provided by AAS therefore complies with the regulations for coverage per occurrence, but it provides insufficient coverage for the annual aggregate. Correct the

certificate, and if necessary the policies so that they comply with the regulatory requirement.

2) Provide copies of each policy with all endorsements and riders.

3) Provide information concerning Starr Indemnity, also referred to as Star Indemnity and Liability Company (Starr). The rules at 40 CFR 264.147(a)(1)(ii) say that the insurer must be licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States. Provide the State that Starr is licensed to provide insurance in, and provide the license number

4) My review of Starr indicates that its parent Starr International Company has an A M Best rating of A (excellent), as of 11/5/21, but I cannot find a rating for Starr itself. If it exists, verify the A M Best rating for Starr, or indicate if it is the same rating as for Starr International Company.

5) Provide contact info for the insurance company that ADEQ for questions concerning the policy. FYI I searched for "Starr Indemnity and Liability Company on the web and found what I believe to be its website. It states that the claims contact info is

claims@starrcompanies.com, telephone [855-782-7725](tel:855-782-7725). Verify if this is the correct information for reaching Starr in the event that a claim must be filed.

Submit this information by not later than March 31, 2022.

FYI, be aware that upon submittal of the insurance policy information for the closure FA, ADEQ will request the above information for that insurer.



azdeq.gov

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Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Mar 24, 2022 at 10:26 AM

To: "James G. Peck" <james@jgpcn.com>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

James -

Just checking in concerning your response to our comments on the liability insurance policy. Are you on track to meet the 3/31/22 deadline?

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



azdeq.gov

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On Thu, Mar 17, 2022 at 6:33 PM Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James -

My apologies for this delayed reply to your submittal concerning the Financial Assurance (Liability) information. In your response to our comments on the liability insurance (Response to SR6 dated 2/18/22 / received by ADEQ 2/22/22), you included in Att D, App F a certificate of insurance from "Starr Indemnity", showing coverage for sudden claims of \$5MM per claim and \$6MM "annual aggregate". The certificate referenced Policy numbers 1000065485211 and 1000336422211, issued 4/1/21. We require additional information concerning the policy and the insurer. Also, the certificate and/or the policies may require revision.

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certificate for sudden and nonsudden accidental occurrences shall provide coverage in the amount of \$4MM per occurrence and \$8MM annual aggregate. The certificate provided by AAS therefore complies with the regulations for coverage per occurrence, but it provides insufficient coverage for the annual aggregate. Correct the certificate, and if necessary the policies so that they comply with the regulatory requirement.

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the A M Best rating for Starr, or indicate if it is the same rating as for Starr International Company.

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Submit this information by not later than March 31, 2022.

FYI, be aware that upon submittal of the insurance policy information for the closure FA, ADEQ will request the above information for that insurer.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



azdeq.gov

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james@jgpcon.com <james@jgpcon.com>
To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

Thu, Mar 17, 2022 at 7:13 PM

Ok. We will look at this tomorrow. I appreciate the after hours effort Anthony.

Sent by iPhone.

On Mar 17, 2022, at 6:55 PM, Anthony Leverock <leverock.anthony@azdeq.gov> wrote:

James

James -

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Submit this information by not later than March 31, 2022.

FYI, be aware that upon submittal of the insurance policy information for the closure FA, ADEQ will request the above information for that insurer.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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James -

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Submit this information by not later than March 31, 2022.

FYI, be aware that upon submittal of the insurance policy information for the closure FA, ADEQ will request the above information for that insurer.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160



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SR7 (Training Plan) and SR8 (Procedures to Prevent Hazards and Contingency Plan)

1 message

Anthony Leverock <leverock.anthony@azdeq.gov>

Fri, Feb 11, 2022 at 5:18 PM

To: "James G. Peck" <james@jgpcon.com>, Charles Templer <chuck@sydcol.com>

Cc: Robin Thomas <thomas.robin@azdeq.gov>, Jessica Kohls <kohls.jessica@azdeq.gov>

James and Charles -

Attached are ADEQ's comments regarding the Training Plan and the Procedures to Prevent Hazards. I had hoped to have this for you by earlier today. I apologize for the delay.

Please provide a complete response to these items by not later than March 4, 2022. In order to ensure that the permit get issued within the timeframe stated in the permit processing schedule this submittal deadline is firm. If you have any questions please contact me.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

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2 attachments**SR7 Training Plan Comments 02-11-22.pdf**

244K

**SR8 PPH and CP Comments 02-11-22.pdf**

774K

Comments on Training Plan
Permit Attachment H

1. Section 2.1 – Job Title/Job Description – The TP identifies 12 job titles. The Appendix should provide a matrix of training for each job title. An example is attached. Populate the matrix with the training requirements specified in Section 2.5 and 2.6
2. Section 2.4 – Personnel responsible for conducting waste consolidation must specifically be trained in waste compatibility and proper procedures used to mix wastes. Add this to the requirements and matrix
3. Section 2.6.3 – “Equipment monitoring for leaks and equipment repair (triannual)” – it is unclear if this refers to operating and physically maintaining the instrument(s), personnel handling monitoring equipment must be specifically trained in the methods used to calibrate the instruments. This includes studying the EPA methods and the manufacturer’s calibration documentation. Clarify and add the requested detail.
4. Section 3.0 – Maintenance of Training Records / Copy of Personnel Training Documents – Where will the current and past training records be retained? The plan just says that they will be maintained by AAS.
5. Appendix A – Training Review Report – The appendix is blank. Include a sample copy of the report to be used.

| 1 | One Time | | | Annual | | | | | | | | | | Triennial | | Recommended and Optional Courses | | | | | | | |
|-----------------------|-----------------|------------------|------|---------|----------|----------------|---------------------------|-----------------------|----------------------|----------------|---|---|------------------|------------------------|---------------------|----------------------------------|-------------------------------|--------------------------|------------------------------------|--------------------------------|-------------------------|---------------|----------------------|
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | | | 13 | 14 | 15 | 16 | 17 | 18 | 20 | 21 | 12 |
| Job Title | RCRA Operations | Hazwoper - 40 Hr | MSHA | Medical | Fit Test | RCRA Refresher | Hazwoper - 8 Hr Refresher | MSHA - 8 hr Refresher | Workplace Harassment | Cyber Security | | | Inspector Safety | Annual Safety Training | DOT HazMat (HM-181) | ADOA Driving | Bloodborne Pathogen Awareness | Confined Space Awareness | Electrical Safety & Lockout/Tagout | General Field Hazard Awareness | Trench Safety Awareness | CPR/First Aid | Hazard Communication |
| Facility Manager | 1 | 1 | 1 | 3 | 3 | 1 | 3 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Compliance Manager | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 3 | 3 | 2 | 2 | 2 | 2 |
| H&S Manager | 1 | 1 | 3 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 3 | 3 | 2 | 2 | 2 | 2 |
| Training Manager | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Yard Manager | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Emergency Coordinator | 1 | 1 | 3 | 1 | 3 | 1 | 1 | 3 | 1 | 1 | 1 | 2 | 3 | 1 | 3 | 1 | 2 | 3 | 3 | 3 | 2 | 2 | 2 |
| Yard Supervisor | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Chemist/Lab Tech | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 1 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| HW Tech 1 | | | | | | | | | | | | | | | | | | | | | | | |
| HW Tech 2 | | | | | | | | | | | | | | | | | | | | | | | |
| Driver | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 2 | 3 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |
| Admin Assistant | 1 | 3 | 3 | 3 | 3 | 1 | 3 | 3 | 1 | 1 | 1 | 2 | 1 | 1 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 2 | 3 |

Mandatory 1
 Optional 2
 Not Required 3



Anthony Leverock <leverock.anthony@azdeq.gov>

A.A.Sydcol Permit Application

3 messages

Anthony Leverock <leverock.anthony@azdeq.gov>

Thu, Dec 2, 2021 at 12:44 PM

To: "James G. Peck" <james@jgpcon.com>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>, Terry Baer <baer.terry@azdeq.gov>

James -

Thanks for the quick response on the administrative comments. My email was not intended as a detailed technical review, it was a broad administrative review which was intended to ensure that all components were submitted. You are right, it appears that all CBR forms have been submitted for the facility. However, I do have some comments on the Contingency Plan (CP).

I reviewed the printed copy of the CP- I assume it is the same as the copy on the flash drive. I note that the revision date on the cover and the TOC is 7-13-21, but on subsequent pages it is 6-23-20. The transmittal letters to the emergency response agencies is 11-12-19.

On page 3 under 2.1 General Facility Information in the table the "Primary Contact Person" is Charles M. Templer, phone number of (928) 783-3676, and the "Alternate Contact Person" is Juvi Remitio, phone number of (928) 210-7077. Then, on page 7 there is a table of "Emergency Coordinators" and it lists Dan Drewek, Facility Manager as Primary, Alexander Hayden, Operations Manager, as Alternate, and Juvi Remitio as a second Alternate. So, it appears that as far as identifying the Emergency Coordinators, you are correct, I incorrectly read the names on page 3 as being the EC's without going further into the document. This brings up a couple of issues that I have with the CP:

1) Organization of the CP

i) The EC's names should be prominently displayed in the CP. The EPA guidance on Preparedness and Prevention Requirements for TSDFs, dated 3/5/10 (attached) includes EPA recommendations derived from the lessons learned from the 10-05-06 EQ Fire in Apex, NC. It advises States to require that the CP's be submitted with certain presentation requirements and incorporated elements from the Procedures to Prevent Hazards component of the permit application. For example, the CP should have an executive summary in the intro of the document (see page 6 of the guidance for detail) that presents summary information for the facility including the names and phone numbers of the emergency coordinators. Currently, the CP has the names of Charles Templer and Juvi Remitio as the contacts on page 3. So, instead of as is currently presented, the CP needs to have an executive summary, and the "Primary Contact" and "Alternate Contact" persons must be replaced with the names of the Primary EC and Alternate ECs. Again, I note that the presentation was confusing to me as I skimmed the CP looking for the EC's, so I would expect it would likewise be confusing to an emergency responder who is quickly reviewing the document in order to contact the facility's EC during an emergency event, e.g., in the event that an incident (fire) was phoned in by a third party / neighbor after hours, and the responders are waiting at the gate to respond to the emergency event.

ii) The guidance states that a description of the preparedness and prevention measures for the facility be in the appendix. It appears much of this is done both in the body of the CP - it lists the emergency equipment in Section 6 - and in Appendix B, which provides an overview of the facility. The info in App B is quite general - it should be more specific on the following: a) detail on the emergency water supply needs to be shown, including a diagram showing the details concerning the hookup to the 121,000 gallon water tank. b) detail concerning the emergency response access to the facility (i.e., crash-through gate access details as described in the Att F, Section 2, and c) other relevant preparedness and prevention measures for the facility should be placed into the CP, preferably in the appendix, so that it remains a stand-alone go-to resource for emergency responders in the event of an emergency.

2) EC Authority - The CP in Section 3, page 8 states that the EC *should* make an initial internal notification to Mr. Templer in an emergency. It is not clear what the purpose of this internal notification is, but it should not be a specified step in the CP. Per 40 CFR 264.55 the EC must be authorized to commit the resources needed to carry out the contingency plan, so notifications of or authorizations from Mr. Templer are not needed. I expect that in an emergency the primary EC is going to be quite occupied as a resource to the emergency responders, and he may not have the time available to perform this notification during an emergency event. This paragraph must be removed.

3) Electronic Submission to Local Emergency Response Entities - The guidance advises States to promote the electronic submission of "emergency planning information" to the emergency response agencies. Has this been done? Please note the footnote on page 6 that provides a web link for erplan.net. As the EPA guidance was printed in 2010 it is likely out of date, and more sophisticated websites and resources may be available now.

Please provide a response and update within seven days of this email.

[Quoted text hidden]

[Quoted text hidden]

 **Preparedness and Prevention Requirements for RCRA TSDFs.pdf**
505K

James G. Peck <james@jgpcon.com>
To: Anthony Leverock <leverock.anthony@azdeq.gov>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

Wed, Dec 1, 2021 at 10:31 AM

Anthony:

Attached is a zip file with the files in the format as requested. I've also included several of the spreadsheets in excel format so that the Department can readily see formulas used in spreadsheet calculations.

As for the second question, the four individuals listed in the application as key employees are all the key employees as of now. Once the permit is issued, Sydcol anticipates additional hires and/or contractors to supplement the existing staff as per the training plan, and will submit key employee forms at that time.

Note that Dan Drazek is listed as the Primary Emergency Coordinator and Alex Hayden is listed as the Alternate Emergency Coordinator in Table 3.1 of Attachment G (Contingency Plan) of the application. I'm curious where you are seeing Chuck and Juvi listed as the emergency coordinators.

Sincerely,

-James

[Quoted text hidden]

 **Sydcol Part B.zip**
12474K

Anthony Leverock <leverock.anthony@azdeq.gov>
To: "James G. Peck" <james@jgpcon.com>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Charles Templer <chuck@sydcol.com>

Wed, Nov 24, 2021 at 11:14 AM

Hello, James - I got the application and am doing a basic administrative completeness check.

1. When you have a chance, please send me the permit application files in word format. I am specifically interested in the narrative and the permit attachments that will be transferred to the permit. I am not interested in the Part A with its attachments, but those sections after the Part A with its attachments. Also, please provide the graphic files for all the figures used in the attachments either in .tiff, .jpg, or other commonly used graphic format. For large format diagrams such as would be provided for the containment structures or other diagrams for processing units a format using vector graphics (CAD formats) would be preferred if they are available.

2. Regarding updates to the Character Background Reference forms. There are four in there. Charles, Juvi, Dan Drezek, and Alexander Hayden. I want to make sure that all relevant persons have submitted the forms. The training plan lists a Facility Manager, a Compliance Manager, a Health and Safety Manager, a Training Manager. What are the names of the people in these positions. Also, the emergency coordinators and the alternate emergency coordinators are listed as Charles and Juvi. The EC should be at the facility or capable of being at the facility in a short period of time (minutes), even considering the virtualization possibilities of technology, the EC is supposed to personally engage with the emergency response agencies. Please confirm that Charles is the EC. and that Juvi is the alternate.

Also, this email serves to update you that Jessica Kohls has joined the Haz Waste Permits and Support Unit as our manager. If you have any issues with my review or if I am unavailable for some reason, you can contact Jessica at (602) 7710391, email is kohls.jessica@azdeq.gov.

Please email or call me if you have any questions or comments concerning the above. Thanks.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



azdeq.gov

Your feedback matters to ADEQ. Visit azdeq.gov/feedback

SR7 (Training Plan) and SR8 (Procedures to Prevent Hazards and Contingency Plan)

1 message

Anthony Leverock <leverock.anthony@azdeq.gov>

Fri, Feb 11, 2022 at 5:18 PM

To: "James G. Peck" <james@jgpcon.com>, Charles Templer <chuck@sydcol.com>

Cc: Robin Thomas <thomas.robin@azdeq.gov>, Jessica Kohls <kohls.jessica@azdeq.gov>

James and Charles -

Attached are ADEQ's comments regarding the Training Plan and the Procedures to Prevent Hazards. I had hoped to have this for you by earlier today. I apologize for the delay.

Please provide a complete response to these items by not later than March 4, 2022. In order to ensure that the permit get issued within the timeframe stated in the permit processing schedule this submittal deadline is firm. If you have any questions please contact me.

Anthony Leverock

Associate Engineer

Hazardous Waste Permits/Support Unit

Ph: 602-771-4160

**azdeq.gov****Your feedback matters to ADEQ. Visit azdeq.gov/feedback**

2 attachments**SR7 Training Plan Comments 02-11-22.pdf**

244K

**SR8 PPH and CP Comments 02-11-22.pdf**

774K

Comments on Procedures to Prevent Hazards –
Permit Attachment F

1. Section 2.2 – 24-Hour Surveillance System – The permit application requirements (270.14(b)(4) and 264.14, as well as permit guidance require that details of the security measures and equipment be described. ADEQ understands that such security details may be sensitive. Therefore, include a security plan in the permit application. It may be declared as business confidential. For the hard copy submittal you may print it on paper with a different color than white so that it is easily distinguished from the non-confidential portions of the application Include the following information in the plan:
 - a. Include the name of the security company, their location, and contact information.
 - b. Show the locations of the 17 cameras on a diagram.
 - c. Describe the method of capture of video. Based on the description it appears to be on memory card. Identify the equipment and its location.
 - d. The security equipment must have back-up power, so describe that.
 - e. “Any concerns that need further investigation are immediately called to the Emergency Coordinator or an alternate Emergency Coordinator on call to investigate the situation.” If AAS’ EC’s are to be relied upon by the Security Company to follow up on concerns, a copy of the Contingency Plan (CP) must be provided to the Security Company. Update the CP to ensure that the security company is on the distribution list, and ensure that documentation is included to show that a copy of the CP has been distributed to the Security Company.
2. Section 2.4 – Warning Signs – “Warning signs are posted at the entry gate and along the publicly -accessible perimeter fencing used to secure the Facility along the north, east, and south property.” This section doesn’t comply with 40 CFR §264.14. Warning signs must be posted to be visible at each approach to the facility. Figure 2 does not show signage on the northern fence Add signage to the western and northern fences, and update Figure 2. Add four signs on the west and four signs on the north, such that they are legible and readable from 25 feet (or 30 feet as specified in the permit application).
3. Section 3.0 – Inspection

General comment for this section: The narrative provides the general information and detail, and includes checklists in the Appendix per the Sections’ procedures, but the checklists (inspection log and inspection reports) are what the AAS inspector will be holding when completing inspections. Regarding the inspection reports, the Appendix includes daily, weekly, and quarterly inspection reports. The inspection reports should provide the inspector guidance on what types of problems to look for, but we see that the section does a good job of identifying defects, already - a solution would be for the inspection reports to reference the section in App F that provides the detail for the inspector to complete his inspections. Other specific comments:

- a. Containers – The Daily Inspection Report includes a check boxes for “containers” and “labels” for HWMU1, HWMU2, and HWMU3. First, as noted above, the inspection report must include those things to check for, or it may reference the full list in the narrative. Also, include in the 3.1.5 table additional defects such as other container conditions (rusted, dented, and “other deterioration”), and defects on container cover condition, including improper bung closure and lock rings not tight. These are frequently noted violations made by ADEQ inspectors.

- b. Containment structures – the inspection report must reference the location of the defects. Additional detail on the assessment of defects is to include either in the narrative or on the inspection report info such as: The size of a crack (this must be noted in the report – also, the section must provide guidance on cracks, such as if they are surficial, then they are not to be evaluated, if penetrating, they must be evaluated in some way, including measurement (this assessment must be described either in the narrative or in the container management plan (specify and reference either as appropriate). The SOP for performing a remedy must be specified (e.g., the size of crack warranting corrective action, how the measurement is made, and the procedures or alternative that will be considered to repair). Note that ADEQ usually requires even more extensive detail on crack repair including the materials used, and how the repair is performed, since container coatings frequently specify such methods, however, AAS is not using a coating, this additional information is not needed. Nevertheless, the general procedure on how to address cracks must be included.
- c. The narrative and table in 3.1.5 for inspection of the three containment structures is too broad in its description of the presence of liquid in the containment, either from a spill or from precipitation. The section must expand this. A source must first be identified. It must detail that water from precipitation must be removed from the containment system within an established and specific period of time. This is because containers are not allowed to be stored on standing water. ADEQ inspectors will ask to see the checklist and will note as a violation containers allowed to be in standing water for greater than the allowed period. Even in HWMU3, where pallets will be used for liquid wastes, the presence of standing water presents a hazard; in addition, not all drums will be stored on containment pallets in HWMU3 (e.g., containers of solids). Therefore, the plan should specify the period of time from discovery that the containment defect will be remedied, (e.g., either be removed from standing water and/or the precipitation removed). Also, for spills, the liquid from a spill must be addressed immediately, and the procedures described: e.g., leaks contained using the materials in the spill kits, and/or the liquid from the leak removed or adsorbed and then removed – in either case, the remedy must be done immediately.
- d. The use of a global “check box” for some items is not acceptable. Specifically, safety equipment and equipment for response to fires or spills, such as fire extinguishers, eye washes, spill kits, and showers should be ID’d (for extinguishers, the type and size, too) on the inspection reports. For defects, it is OK to reference the narrative/table for the details.
- e. Fencing and gates - All fencing and gates need to be inspected at a frequency that is consistent with the intent of the regulation – in this case, they must be identified in a timely manner before the defect may create a hazard. Section 3.1.3 indicates that this will be done monthly, ADEQ suggests that it be done weekly, since fencing or gates may be compromised by an intentional action from animals or people, as well as from natural causes (stormwater run-on or run-off creating gaps under the fence or gate. As for the other items, the associated inspection report must reference the typical defects that will be looked for with the fencing and gates, including any notation of burrowing or other gaps under fences or gates, slumping of the fence or gates and fence posts, condition of the fence fabric including any damage to the links, the condition of the barbed wire or the barbed wire supports. Add narrative describing the inspection of these items and describe what the inspector will examine.

4. Section 3.1.1 – Daily Inspection – Paragraph 2 states: “Any damage or deterioration of

containers or containment systems will be remedied as quickly as possible to ensure that the issue is not an environmental or human health hazard.” Damage or deterioration of containers must be addressed immediately upon discovery. Similarly, damage to containment pallets that are in use must be addressed immediately upon discovery. For these equipment, this is a technical requirement as well as a safety requirement. The general duty is to minimize the possibility of release, and any delay of responding to a container that is not in satisfactory condition is not compliant; however, damage to containment systems (berms) must be addressed as soon as possible, and the language described in this section is acceptable.

5. Section 3.1.4 - Paragraph 2 describes the annual inspection details. There needs to be a checklist (inspection report) that is used to document compliance.
6. Section 3.1.5 – Several comments in 3.1 have already identified issues with the information in this section. As already noted, include in this table a listing for fences and gates, rather than including it in the general Security Equipment and Devices., and expand the types of problems as previously noted for Fences and Gates and the other items.
7. Section 4.1.4 – Fire and Water Control
 - a. The section states that the fire suppression is tested annually by a consultant. The prior substantive review requested that this be included in a inspection checklist for the annual report. Include an annual inspection report that includes this item. Include an inspection of the fire water tank either on the annual or the quarterly report.
 - b. Fire extinguishers are shown on Figure 2, and are on the Weekly/Monthly Inspection Report. Extinguishers are a vitally important safety device. They should each be given an ID, be described by type and size, and the inspection report should have a separate line item for each extinguisher ID, rather than the single checkbox on the Weekly/Monthly Inspection Report.
 - c. Eye Washes and Showers are shown on Figure 2 and are included in the Weekly/Monthly Inspection Report.
 - i. They should each be given a unique ID, and the inspection report should have a separate line item for each eye wash and shower.
 - ii. Figure 2 only shows two eye wash stations and one shower at the SWMU. There should be an eye wash stations at HWMU3, and an emergency shower in the field near the HWMU’s. The emergency shower should be located under the overhang so that the water temperature in the line is more reasonable.
 - iii. The emergency shower should be tested for function and the test should be shown on the checklist (i.e., inspection report).
8. Appendix A - Inspection Log – General comment only: It is noted that the inspection log shows an entry cell for the inspector’s initials. Note that use of initials for the log is acceptable so long as it is possible to associate the log entry with an inspection report. Review the inspection reports relative to the inspection log to ensure that it is easy to verify log entries with the associated checklist.
9. EPA guidance on Preparedness and Prevention – Attached is the EPA guidance concerning DEQ has previously shared with you the 1998 EPA guidance on Preparedness and Prevention Requiements for RCRA TSDFs, dated March 5, 2010. This

was previously shared with you during the review of the 2020 application. The Procedures to Prevent Hazards in the application must be updated to comply with this guidance.

- a. The first recommendation concerns electronic submittal of emergency planning information to the local ERC (see page 6 of attached guidance). Contact the Yuma LEPC to verify if electronic submission is accepted. If so, submit the information in the required format.
- b. The second recommendation concerns adding the Prepared and Prevention Information to the Contingency Plan as an appendix. This appears to have been done.
- c. The third recommendation concerns providing executive summary information including the names and telephone number of all Emergency Coordinators. ADEQ has also commented on this item in our comments on the Contingency Plan (see below).
- d. The fourth recommendation concerns having available at AAS of updated facility information to emergency responders. AAS must design a report that identifies the hazardous waste storage areas (preferably with a figure), the maximum inventory in each area, the locations where workers may be gathered (e.g. for emergency services), and the general types of hazardous waste that would be present at each storage location. In addition, the report must be supplemented with a dated inventory report that is periodically updated for the facility. The update frequency must be no less than weekly in order to keep the report reasonably current. The information must be available at the location where emergency responders may access it.

ADEQ will include a permit condition requiring this report and repository location, and requests that AAS identify the location for this repository (ADEQ suggests a document box be placed outside of the facility gate).

10. Section 5.1 – Unloading Procedures – This section notes that containers that are found to be leaking will be placed immediately in a drum overpack. Either describe here or point to a section in the Container management plan with a description of the procedures that will be used to address bulging drums, such as pressure relief, possibly followed by overpack if necessary. Provide general steps on how such pressure relief will be done. This is needed since Yuma experiences high temperatures much of the year and this is an expected occurrence. Best to have these steps provided in writing. In addition, identify the describe the process in assessing addressing a collapsed drum (due to temperature change or because of physical forces).

11. Section 5.2 – Runoff Prevention

a. Page 20 –

- i. The paragraph states that precipitation will be collected within 24-hours of event such that the water is pumpable, which is acceptable. Update the other sections of App F to be consistent with this.
- ii. “Rainwater will be sampled for waste characterization within 10 days..” The section mostly properly describes the options for disposal of rainwater. For the option of contained-in, this is reserved for rainwater contaminated with listed wastes. Indicate this in the section. Also, as previously noted, the “contained-in thresholds” must be approved by ADEQ (the previous reference didn’t include

that, but this section does say that the contained-in thresholds are established by permit, which implies ADEQ approval. Just to be clear, however, contained-in determinations are case-by-case. A general permit condition has not been established to allow general contained-in determinations.

- iii. The section states that the facility includes an engineered system of retention basins. Include the engineered diagrams for the basins and show that they are designed to handle a storm. Describe the size of the storm that they are designed to address (e.g., a 25 year, 24-hour storm event, etc) and provide the inches of precipitation and the size, in gallons for each of the retention basins.
- b. Page 21-
 - i. Paragraph 2 on p 21 states “Sydcol may apply for an Aquifer Protection Permit from ADEQ to utilize clean stormwater for dust control or other applications at the Facility.” Delete this sentence, as it is not clear that an APP is applicable at a TSDf as APP has a exemption for TSDfS. Further guidance on this topic will be provided at a later date.
 - c. “Rainwater will be removed from any containment area containing RCRA waste in as timely a manner as necessary to prevent overflow of the containment area.” This is per 264, Subpart I, but rainwater must also be removed form the containment area to provide for adequate containment of spills. Consider removing the words “to prevent overflow of the containment area” as there are other issues with allowing standing water in containment systems.
 12. Section 5.4 – Clarify if the security equipment, including video camera system is also protected by battery back-up power source.
 13. Section 6.0 – Prevention of Reaction of Ignitable, Reactive, and Incompatible Waste – ADEQ has no significant comment on this section, except for typo corrections, or minor change requests:
 - a. 6.1, line 2, change “is Attachment C” to “in Attachment C”.
 - b. 6.4, line 1 “the four management units, HWMU1, HWMU2, or HWMU3” change this to “three management units.”
 - c. 6.5, line 3, “Containers are never stacked taller than the equivalent of two 330-gallon totes, with smaller containers always placed on larger containers.” Update this to indicate that Containers are limited to two stacked containers.
 - d. 6.5, line 4, “The only ignition sources within the management units are electrical outlets in HWMU1.” Correct the typo. Also, are electrical outlets in HWMU1? Is this a holdover from when HWMU1 was within the warehouse?

Comments on Contingency Plan
Permit Attachment G

1. Section 2.1 - As noted previously, the EPA guidance on PPH and CP's requires the contact information for the emergency coordinators to be included in the executive summary. Currently, Mr. Templer and Mr. Remito are shown in the table in Section 2.1. However, Mr. Templer is not an emergency coordinator, so replace his contact information with the ECs named in the CP. It is certainly acceptable to include Mr. Templer as an "Other contact (owner)" elsewhere in the CP.
2. Section 2.5 – line 4: "Temporary storage of hazardous wastes in transport may be present in tanks and containers on trucks in the designated SWMU." We assume this refers to tanker trucks. Clarify this as no storage of hazardous wastes in tanks is in the application.
3. Section 2.7 – Unacceptable Wastes – Regarding the storage of lithium ion (LION) batteries. It is understood that larger LION batteries will be prohibited, but are all batteries to be prohibited from storage, including small LION batteries? In your response clarify this. If very small batteries are allowed provide the size.
4. Section 3.2 – "During an emergency event, the EC should make the following initial internal notifications. Chuck Templer, Owner (928) 783-3676, (714) 273-8150." Stating that the EC is expected to contact the facility owner during an emergency is not acceptable. The EC should be focused on assisting the emergency responders and will likely be too busy to make that call. This must be removed.
5. Figure 2 – The number of eye wash stations and showers are not adequate, update the CP to include an additional shower near HWMU1 and HWMU2, and add more eye wash. Update the western and northern stretches of fence to show the warning signs.
6. Attachment – Preparedness and Prevention Information –

Item 4 states that the total facility capacity is 756 drum equivalents. This does not match the information elsewhere in the permit application. If there is to be a total facility capacity. The application must present the methods that will be used to ensure that the capacity is met, since the HWMU storage capacities are stated in Att D Table 3 as 59,400 gal for HWMU1, 105,600 gal for HWMU2, and 83,160 gal for HWMU3 (this may not be correct as elsewhere it looks like HWMU3 has the maximum capacity., and the inset table on Att D, Figure 4 shows the following drum equivalents: HWMU1 600, HWMU2 1100, and HWMU3 1512 drum equivalents, total equals 3212 drum equivalents or 176,660 gal. Clarify and correct as needed.

Item 7 states that HWMU2 has a Class D fire extinguisher. This doesn't match other areas of the application, including Section 6.0 and Table 6.1 of the CP and Attachment F (PPH), (for example Section 4.1.3). Clarify and correct as needed.



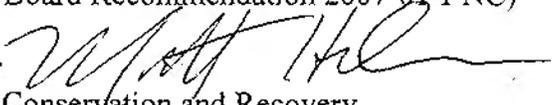
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 5 2010

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

MEMORANDUM

SUBJECT: Preparedness and Prevention Requirements for RCRA TSDFs (Response to Chemical Safety Board Recommendation 2007-01-I-NC)

FROM: Matt Hale, Director 
Office of Resource Conservation and Recovery

TO: RCRA Directors
EPA Regions 1-10

This memorandum provides guidance for Resource Conservation and Recovery (RCRA) permitting authorities to ensure that state and local authorities and first responders have sufficient information for emergency preparedness, prevention, and response at RCRA hazardous waste Treatment, Storage, and Disposal Facilities (TSDFs). As you are aware, most preparedness and prevention requirements for TSDFs are now imposed through authorized states via the RCRA permitting process. Therefore, we worked with states and Regional staff in developing this guidance. I encourage you to share this guidance with your state counterparts, and am providing a copy to the states through the Association of State and Territorial Solid Waste Management Officials (ASTSWMO). In short, as discussed below, this guidance recommends that TSDF permits explicitly require that owners and operators provide up-to-date written information about the facility and hazardous waste located there to State Emergency Response Commissions (SERCs), Local Emergency Planning Committees (LEPCs)¹, local fire departments, and other state and local emergency response authorities, as appropriate. This guidance recommends also that owners of RCRA TSDFs that already have permits, and those that are operating under interim status, follow this practice as well.

Background

The U.S. Chemical Safety and Hazard Investigation Board (CSB) conducted a formal investigation into the fire that began on October 5, 2006 at the Environmental Quality Co. (EQ), Apex, North Carolina, hazardous waste facility. The CSB published a case study, *Fire and Community Evacuation in Apex, North Carolina* (2007-01-I-NC, April 16, 2008, <http://www.csb.gov/assets/document/EQFinalReport.pdf>). In its case study, CSB expressed a concern that the RCRA hazardous waste regulations do not explicitly state what information the

¹ LEPCs are responsible for developing a local contingency plan for chemical risks in their community.

owner of a RCRA TSDf must share with local authorities, whether the information should be written, or if updates are necessary.

According to the CSB, EQ “had not provided any detailed written information on the types, quantities, and location of hazardous materials in the facility to fire personnel or the Local Emergency Planning Committee.” Furthermore, since the EQ facility “was unoccupied at the time of the incident, no emergency coordinator was on-site to initiate the facility contingency plan.” EQ had addressed the RCRA regulatory requirement to “familiarize” local authorities with the facility and hazardous waste handled there by having the fire chief “tour the facility once.”² The CSB explained that “because of the unknown nature” of the burning chemicals and exploding drums at the EQ Apex site, local responders “chose to take only defensive actions” to minimize risks to emergency personnel and the community; about thirty people, including 13 first responders, sought medical attention, and about 3,300 residences were evacuated for two days.

In addition to the EQ incident, CSB identified 21 fire and chemical release incidents at hazardous waste facilities nationwide over the last five years, resulting in injuries, fatalities, evacuations, and other disruptions. CSB also reviewed fire protection practices in use at 12 hazardous waste facilities and found wide variation. CSB noted in their analysis that, “while not required, had EQNC used fire barriers (walls) to separate the segregated waste bays, the fire would likely have been contained within the oxidizer bay, significantly mitigating the incident’s consequences.”

Based on its investigation, CSB recommended that EPA:

Ensure that the emergency response planning required for permitted hazardous waste treatment, storage, and disposal facilities (40 CFR 264.37) includes providing written information to state and local emergency response officials on the type, approximate quantities, and locations of materials within the facility (similar to reporting requirements of the Emergency Planning and Community Right-to-Know Act).

Additionally, ensure that permit holders periodically update this information throughout the ten-year permit period.

CSB’s recommendation is intended to help address the apparent lack of communication between TSDf’s and state and local emergency authorities regarding facility operations.

EPA’s Response to CSB

In an October 2008 letter to the CSB, EPA agreed to “...encourage state Governors, SERCs, and LEPCs to exercise their authorities, as appropriate, to designate TSDf’s as subject to the requirements of Subtitle A of EPCRA, and to consider requiring them to annually provide

² According to the NC Department of Environment and Natural Resources, other members of the fire chief’s staff had routinely visited and inspected the EQ facility prior to the fire.

chemical inventory information to SERCs, LEPCs, and local fire departments.”³ EPA has since encouraged each state to exercise their authorities in this way under separate correspondence.⁴

In the same [October 2008] letter to the CSB, EPA expressed its intent to work with the states to develop guidance on how to accomplish CSB’s recommendation under the existing RCRA regulations for TSDFs, and to explore whether a regulatory change is needed. After conducting a thorough review of the existing regulatory framework, the Agency has concluded that the existing regulatory framework under 40 CFR Parts 264 and 265 provides the authority to address the CSB’s recommendation, and that the most effective and timely means of addressing a communications gap between TSDFs and state and local authorities is to provide additional guidance for TSDF permit writers under the existing regulations. Today’s memorandum fulfills the commitment to develop that guidance.

Regulatory Framework

This section focuses on the federal RCRA hazardous waste regulatory framework; state RCRA programs may have additional requirements. Under section 3006 of RCRA, EPA authorizes qualified states to administer the RCRA program within the state. RCRA section 3009 allows states to impose standards more stringent than those in the federal program (see also 40 CFR 271.1).

The requirements for TSDF preparedness and prevention and contingency planning are inter-related, and together provide the basis for the guidance below. These topics were discussed together in the preamble to the final rule (45 FR 33153, May 19, 1980). The preamble makes clear that “[t]he final Part 264 and 265 Subpart C preparedness and prevention rules are intended to minimize the possibility and effect of a release, fire, or explosion which could threaten human health or the environment.” (45 FR 33184). Also, with respect to contingency plans, the preamble states: “to protect human health and the environment in emergencies, it is vital that local authorities have up-to-date facility contingency plans in their possession.” (45 FR 33186). EPA believes that, just as TSDF owners/operators must submit written contingency plans and revisions “to all local police departments, fire departments, hospitals, and state and local emergency response teams that may be called upon to provide emergency services” (40 CFR §264.43(b), §265.53(b)), owners/operators also should submit **written preparedness and prevention information (PPI)** to these authorities, including SERCs and LEPCs, as appropriate.

RCRA’s TSDF Preparedness and Prevention regulations in 40 CFR Parts 264 and 265 Subpart C (for permitted and interim status facilities, respectively) require owners and operators to make arrangements with local authorities for potential emergency response. The owner or operator of a TSDF “must attempt to make the following arrangements, as appropriate for the type of waste handled at [the] facility and the potential need for the services of these organizations” (40 CFR §264.37 and §265.37, for permitted and interim status facilities, respectively):

³ October 31, 2008 letter from Susan Parker Bodine, Assistant Administrator for the Office of Solid Waste and Emergency Response to the Honorable John S. Bresland, Chairman and CEO of the CSB.

⁴ August 20, 2009 letters from Deborah Dietrich, Director, EPA Office of Emergency Management, to SERC chairperson in each State.

- Arrangements to familiarize police, fire departments, and emergency response teams with the layout of the facility, properties of the hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes;
- Where more than one police and fire department might respond to an emergency, agreements designating the primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority;
- Agreements with state emergency response teams, emergency response contractors, and equipment suppliers; and
- Arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

Furthermore, RCRA's TSDF Contingency Plan and Emergency regulations in 40 CFR Parts 264 and 265 Subpart D (for permitted and interim status facilities, respectively) include additional requirements that are relevant to responding to incidents in an informed and timely manner. The regulations in Subpart D - Contingency Plan and Emergency Procedures require that:

- The contingency plan (plan) be designed to minimize hazards to human health and the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous constituents to air, soil, or surface water (§§264.52(a), 265.52(a)).
- The plan describe arrangements agreed to by local police and fire departments, hospitals, contractors, state and local emergency response teams to coordinate emergency services (§§264.52(c), 265.53(c)).
- The plan list names, addresses, and phone numbers (home and work) of all persons qualified to act as emergency coordinators (§§264.52(d), 265.52(d)).
- The plan include a list of all emergency equipment at the facility, must include the location and physical description of each item on the list and a brief outline of its capabilities (§§264.52(e), 265.52(e)).
- Copies of the plan and all revisions to the plan be maintained at the facility (§§264.53(a), 265.53(a)).
- Copies of the plan and all revisions also be submitted to all local police and fire departments, hospitals, state and local emergency response teams that may be called upon to provide emergency services (§§264.53(b), 265.53(b)).
- The plan be reviewed, and immediately amended, if necessary, whenever a facility's permit is revised, the plan fails in an emergency, or the facility changes – in its design, construction, operation, maintenance or any other circumstances – in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency (§§264.54 and 265.54).
- There be at least one employee either on the facility premises or on call (i.e., available to respond to an emergency by reaching the facility within a short period of time) with the responsibility for coordinating all emergency response measures. They must be thoroughly familiar with all aspects of the contingency plan, all operations and activities

at the facility, the location and characteristics of waste handled, the locations of all records within the facility, and the facility layout (§§264.55 and 265.55).

The regulations clearly intend that, in the event of a fire, explosion or release, local responders have current and specific information to properly address the incident and minimize hazards to human health and the environment.

In addition, if there are facility-specific circumstances where the permitting authority determines that additional requirements are necessary to ensure protection of human health and the environment, then the RCRA “omnibus authority” (RCRA §3005(c)(3), codified at 40 CFR §270.32(b)(2)) may be used to incorporate additional conditions into the permit.

Guidance to RCRA Permitting Authorities

CSB’s findings underscore that, to be useful when an actual emergency occurs, PPI for state and local responders must be available to responders in advance and in writing. Furthermore, CSB’s recommendations are consistent with EPA’s intent that local responders have *in-hand* the specific information they need for prompt and effective response, particularly when a facility is unoccupied or its emergency coordinator is not on-site (as in the Apex, N.C. incident).⁵

Therefore, EPA strongly encourages Regions and states to include permit conditions requiring TSDFs [subject to 40 CFR Parts 264 and 265 Subparts C and D] to provide written information regarding waste quantities, types, and locations, to state and local authorities (including SERCs and LEPCs) and first responders for the purpose of emergency preparedness and prevention, and to place a copy of this information in the facility’s operating record, as well as to update such information as necessary, and provide the updates to state and local authorities and first responders. EPA also strongly encourages owners of TSDFs that already have permits or are operating under interim status to follow this practice (of providing written, up-to-date information) as well. Providing this information directly to local responders through an additional mode of communication (e.g., in addition to facility visits and walk-throughs) optimizes the capability of local authorities to mount a prompt and effective emergency response that can minimize the facility’s potential damage and liability, and reduce the risk of harm to the community.

Necessary written information will vary from facility to facility, but should contain the following common elements:

- Waste types (ignitable, reactive, etc.)/names ;
- Approximate quantities of each waste type;
- General locations of waste at the facility;

⁵ It is important to note that even when the emergency coordinator is not on-site, local responders should have 24-hour contact information for the designated emergency coordinator. As described in the Regulatory Framework section above, the contingency plan must include this information, and contingency plans must be provided to all local police, fire departments, and emergency response teams. Access to the emergency coordinator will aid in a timely and effective response.

- Layout of the facility;
- General locations within the facility where personnel normally work; and
- Entrances and roads inside the facility and possible evacuation routes.

TSDF owners and operators already are required to maintain or provide this type of information for other purposes, e.g., to include in the facility operating record (in accordance with §264.73) or to submit with the permit application (in accordance with §270.14).

Rec 1

Today, effective emergency planning and response relies on electronic storage and retrieval of information. Accordingly, most states require “written” emergency planning and response information to be submitted in an electronic format that is most useful to emergency responders. Increasingly, emergency responders use laptop computers, Personal Digital Assistants (PDAs), and other portable electronic devices to quickly retrieve facility hazard information using software tools, such as the Computer Aided Management of Emergency Operations (CAMEO) software suite developed by EPA. Therefore, EPA encourages Regions and states to include permit conditions requiring that TSDFs submit required emergency planning information in electronic format so that it can be easily integrated, stored, and retrieved along with other emergency response information, such as that submitted to the states under EPCRA.⁶

There are other advantages to having electronic versions of the contingency plans and PPI. For example, Regions and states could increase the availability of the plans by more readily sharing the material with communities and emergency responders. Electronic versions would also be easier to share with local fire departments for comment prior to approving the plan.⁷

Rec 2

Since the required contingency plan is inter-related with the PPI, we further recommend that EPA or the states require facilities to include a description of the preparedness and prevention measures as an appendix to the contingency plan. Contingency plans will likely be more effective when they include all relevant information, so that they exist as a “stand alone” document with no need to cross-reference other elements of the permit or permit application.

Rec 3

Also, given the size of these plans, permitting authorities should consider having an executive summary included, and including in that summary the names and telephone numbers of all facility personnel qualified to act as emergency coordinators. This type of quick reference would facilitate prompt and effective response in an emergency situation.

Rec 4

Additionally, to ensure the accuracy and currency of PPI, we recommend that permits include conditions to have owners or operators of TSDFs update written information as necessary throughout the lifetime of the permit and provide this information to state and local authorities and first responders. Examples of events necessitating updating written information

⁶ Another national database to which States can submit data is “E-Plan,” a database of State EPCRA Tier 2 annual chemical inventory report databases that can be used by emergency responders. Currently, just over half of the States contribute data to E-Plan and EPA is encouraging more States to contribute. The E-Plan form structure has an area for “additional information” which RCRA TSDFs can use to input daily inventory information. See <http://erplan.net/eplan> for additional information.

⁷ In cases where facilities are located in rural areas, the plans should also be shared with the Mayor or Chief Executive Officer of the town where the facility is located, in case there is a voluntary fire department that may not be under the jurisdiction of the town.

include, but are not limited to: change in waste streams treated, significant changes in volumes or quantity of wastes handled, or significant design changes to the facility. Some of these types of events could trigger a permit modification, which under §264.54 would trigger a review and amendment (if necessary) of the facility's contingency plan.

The conditions recommended above all stem from the authority in 40 CFR Parts 264 and 265 to require PPI. As mentioned above, if there are additional facility-specific circumstances where the permitting authority determines that additional requirements are necessary to ensure protection of human health and the environment, then the RCRA "omnibus authority" (RCRA §3005(c)(3), codified at 40 CFR §270.32(b)(2)) may be used to incorporate additional conditions into the permit. For example, if a facility is not staffed outside of normal business hours, then the permitting authority may be able to use the omnibus provision to require a security monitoring system that would alert the facility's emergency coordinator (and possibly local police or fire departments) of any unauthorized entry or fire occurrence. Or, if the facility is not able to enter into arrangements with local authorities (see discussion under Regulatory Framework above), the permitting authority could explore using the omnibus provision to require the facility to contract with private emergency response coordinators.

As mentioned above, the CSB found wide variation in fire protection practices in use at hazardous waste facilities and commented that, "While not required, had EQNC used fire barriers (walls) to separate the segregated waste bays, the fire would likely have been contained within the oxidizer bay, significantly mitigating the incident's consequences." The RCRA omnibus authority is a tool that permitting authorities may use if there are situations like these where additional, facility-specific, requirements may be necessary to ensure protection of human health and the environment. There are examples of State permitting authorities using RCRA's omnibus authority to improve facility design as a first measure for ensuring preparedness and prevention in particular situations. For example, in response to a large-scale fire incident at an Alabama TSD fuel blender in July 1980, the Alabama Department of Environmental Management (ADEM) has used the "Required Equipment" requirement at 264.32(c) and the RCRA "omnibus authority" to require that fuel blending facilities, and other treatment and storage facilities which treat or store large quantities of ignitable wastes, to be equipped with automated foam-generating fire suppression equipment sufficient to extinguish any fire which might occur in the facility (as opposed to allowing just portable or manual fire-fighting equipment in these areas). In addition, ADEM has imposed minimum aisle space between rows of containers, and limited stacking of containers exceeding 30 gallons capacity to no more than two containers high to enable more effective inspection and response to leaks, as well as more effective fire-fighting capability. ADEM believes the record shows that these measures have helped avoid a repeat incident at any of their facilities. These and similar measures all fall within the overall scope of preparedness and prevention.

Rec 5

Public Involvement and Environmental Justice

Requiring that the waste preparedness and prevention information be provided to local authorities (i.e., LEPCs) and first responders in writing also provides an avenue for public involvement on this important topic. The public involvement regulations in 40 CFR Parts 25, 124 and 270 are intended to foster public awareness and ensure that the Regions and states are

providing the public an opportunity to understand the issues that may have impacts within their community. If the Director of the permitting authority believes sufficient need exists, the regulations allow the Director to require a facility to establish and maintain an information repository in a location easily accessible to the community (see 40 CFR §§124.33 and 270.30(m)). This repository, if required, could hold copies of preparedness and emergency response plans. The public can use this information to better understand their potential risk in an emergency situation and work with local authorities to better understand possible evacuation strategies and emergency response plans.

The Agency's public involvement guidance materials promote interaction among all interested parties, recognizing that both facility owners and operators and regulators have a significant role in ensuring that communities are well-informed about neighboring facilities and their operations. Emergency preparedness and contingency planning are key areas of public interest. Communities expect their governments to take the necessary steps to plan and protect them in the event of an emergency and expect first responders to have the appropriate information on the nature, amount, location, and routes of exposure of hazardous materials and wastes at TSDFs so they can effectively respond to emergency situations. The recommendations included in this memorandum are consistent with the Agency's public involvement regulations and guidance, and will ensure that communities are able to implement timely and effective responses in the event of an emergency. The recommendation to include permit conditions that would require the TSDFs to provide written information to local authorities (i.e., LEPCs) and first responders will help ensure that emergency preparedness and prevention efforts minimize effects to communities that may be impacted by an emergency situation.

Promoting environmental justice for all communities often requires special efforts to connect with those communities that have been historically underrepresented in environmental decision-making. When thinking of meaningful ways to engage all segments of an affected population, facility owners and operators and regulators should be aware that not all communities have equal access to information or an equal opportunity to participate in decision-making processes. Having preparedness, prevention and contingency planning information available locally (and, if appropriate, in a language besides English) will likely provide additional opportunities for members of the community to review the plans and possibly offer suggestions for additions or improvements to response plans.

Additional guidance, including model permits and information on public involvement, is available on the Agency's Internet site at <http://www.epa.gov/epawaste/hazard/tsd/permit/index.htm>.

For further information, please contact Tricia Buzzell at (703) 308-8622.

cc: Lisa Lund, OC
Charles Lee, OEJ
John Michaud, OGC
Dana Tulis, OEM
Mary Zdanowicz, ASTSWMO
John S. Bresland, CSB

Follow-up from EPA Comments and AAS Responses

2 messages

James G. Peck <james@jgpcon.com>

Fri, Jun 3, 2022 at 2:46 PM

To: Anthony Leverock <leverock.anthony@azdeq.gov>

Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

Thank you Anthony. Let me review this with Sydcoll and I'll we get back with you.

Sincerely,

-James

On 2022-06-03 12:40, Anthony Leverock wrote:

James -

I apologize for the delay in following up with you concerning ADEQ's meeting with EPA concerning AAS' response to their comments on the draft permit. As a result of the meeting I was directed to check with AAS on the four issues shown below. The four issues will require either verification/clarification from AAS or changes to the draft permit.

1) For the WAP, EPA requested that we verify the management of lab packs. Is there any particular location that they will be stored, or are they to be managed per the general guidelines for compatibility? My reading of Section 2.4 of the WAP is that it will be the latter (starting with "The Facility will manage the waste consistent with its identified hazard class for storage and/or transportation..." and the remainder of the section doesn't make an exception from these general procedures). I think this is an adequate description, but I wasn't sure when talking to EPA. Please verify if there are other specific requirements for lab packs, and please identify them for me.

2) As you know, EPA and ADEQ are concerned about the importance of lithium ion battery management. You and I have discussed this issue before. AAS has included a general prohibition for such wastes as found in the WAP, Section 3.2. Regardless, EPA noted that, but it is their experience that this will be a difficult waste to fully prohibit such wastes (in the commercial waste stream) because the batteries are frequently co-mingled with other Universal Wastes - usually other small batteries, e.g., ni-cd, etc. And obviously, small LION batteries, including battery packs for our consumer devices (cell phones, laptops) have become ubiquitous in HHW. ADEQ cannot expect AAS to prohibit them in that waste stream. Still, AAS has agreed to segregate/store LION batteries that are discovered in HWMU3, and EPA has asked ADEQ to see if AAS can commit to other measures to reduce or to manage the fire risk. For example, is there a timeframe that AAS can commit to for shipping out collected LION batteries (e.g., that have been identified in the commercial waste stream AND that are contained in the HHW stream). Perhaps AAS can commit to shipping out all such LION batteries within a certain time period. If so, we suggest that Permit Attachment D, Section 3.2, Para 5 be updated to specify such a time frame. Please let me know your thoughts on this.

3) Debris vs Hazardous Debris - EPA has noted that it is their experience that TSDFs have not properly designated some debris as hazardous debris, which require specific forms of management and treatment. It seems to me that EPA's concern is more regarding a general lack of training, such as not properly performing waste identification or waste verification, as would be the case for a TSDF when receiving incorrectly labeled containers. I reviewed the AAS training plan and saw that HW Tech I and HW Tech II positions do not receive any specific LDR training, and that is where the topic of hazardous debris would be discussed. So, I think the Techs would benefit from such training - I acknowledge that the Facility Manager, Compliance Manager, and the "Yard Manager" and "Yard Supervisor" positions (I assume these positions are equivalent to the Foreman I and Foreman II positions we see at other facilities) do receive LDR-specific training. However, since the techs may act with a certain degree of autonomy (e.g., they may be the only persons to receive after hour deliveries, per Att C, Section 6.3), I think it would be wise for them to also get LDR-specific training. This may be a bit overkill, especially since the LDR requirements are fairly complicated, covering much more than just hazardous waste debris and solid waste debris. Still, since a general understanding of LDRs is needed in order to understand the specific topic of debris management, this appears to be the best solution. Please update the training lists of Att H, Sections 2.5.3, 2.6.3, and the Table in Att H, App B to include Land Disposal Restrictions. Of course, if you have an alternative to making this change please feel free to share it for discussion.

4) Subpart CC - Organic Emissions from Containers - The changes you submitted address several of EPA's concerns. For the most part the changes include inserting the regulatory language into the attachment; however, regulatory language does not typically clarify the methods that will be used. AAS' response should clarify how AAS will ensure that containers, such as tanker trucks, will be inspected, and how the inspections will be documented. Basically, EPA said that this is the primary area where they saw a problem with enforceability.

Specifically, the records maintenance for containers with VOC's are addressed in Att O, Section 7. This section says: "As

specified by 40 CFR 264.1086(c)(5), for containers with a capacity of approximately 119 gallons or greater that also do not meet applicable DOT packaging requirements, Sydcol will maintain a copy of the procedure used to determine that they are not in LMS when such a determination is performed." How will AAS identify these particular containers? Is this procedure already in existence (or will it be developed after permit issuance), and is there a form or checklist that will be used for documenting these determinations? Also, we note that Att O, Section 4.0 identifies Att O, App A as the form that is used to inspect containers that have been identified (by the above procedure) and do not meet DOT packaging requirements. Similarly, the section references that form for inspections of containers that have been identified as having the noted defects, and the same form is referenced for containers with defects, and remaining at the facility for a period of greater than one year. Finally, I see that the last paragraph states that Level 2 containers not meeting DOT packaging will be inspected when first received, and also for these containers if they remain at the facility for greater than one year. So, to summarize, it appears that i) A procedure needs to be developed providing the detail of the container review, providing the typical detail expected (who, what, when, how, perhaps where), and ii) this procedure should include a checklist. If this procedure and the checklist are not yet developed, then ADEQ can include this as another SOC permit condition. Please let me know if you want to discuss this further.

I would like to go over these items with you at your earliest convenience. Please feel free to call me or email me with a time that I can call you.

Anthony Leverock

Associate Engineer
Hazardous Waste Permits/Support Unit
Ph: 602-771-4160



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Your feedback matters to ADEQ. Visit [azdeq.gov/feedback](https://www.azdeq.gov/feedback)

Anthony Leverock <leverock.anthony@azdeq.gov>
To: "James G. Peck" <james@jgpcn.com>
Cc: Jessica Kohls <kohls.jessica@azdeq.gov>, Robin Thomas <thomas.robin@azdeq.gov>

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