U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 8
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STATEMENT OF BASIS

PERMITTEE:	United States General Services Administration
FACILITY NAME AND ADDRESS:	Denver Federal Center One Denver Federal Center, Building 41 Denver, CO 80225
PERMIT NUMBER:	CO0034878
RESPONSIBLE OFFICIAL:	Stephanie Downs, Director (303) 945-1476 stephanie.downs@gsa.gov
FACILITY CONTACT:	John Kleinschmidt, Environmental Manager (303) 236-2858 john.kleinschmidt@gsa.gov
PERMIT TYPE:	Federal Facility, Minor Industrial, Permit Renewal
FACILITY LOCATION:	Denver Federal Center Jefferson County, Colorado Lat. 39.715º N, Long. 105.117º W
DISCHARGE LOCATION(S):	Multiple outfalls to McIntyre Gulch (see Table 2)
RECEIVING WATER:	McIntyre Gulch, which is a tributary of Lakewood Gulch, which is a tributary of the South Platte River

1 INTRODUCTION

This statement of basis (SoB) is for the issuance of a NPDES permit (Permit) to the U.S. General Services Administration (GSA or the Permittee). The Permit addresses intermittent discharges associated with certain construction dewatering activities at the Denver Federal Center (DFC). The SoB explains the nature of the discharges, and EPA's decisions for limiting the pollutants in the wastewater, as well as the regulatory and technical basis for these decisions.

The DFC is a federal facility located in Lakewood, Colorado. EPA Region 8 is the permitting authority for federal facilities located within the state of Colorado.

2 MAJOR CHANGES FROM PREVIOUS PERMIT

- A flow limit has been added to the Permit to comply with Colorado Regulation Number 61.
- Total suspended solids (TSS) effluent limits have been modified to comply with Colorado Regulation Number 62.
- Multiple parameters (including volatile organic compounds [VOCs], semivolatile organic compounds [SVOCs], and metals) have been added to the monitoring requirements to better protect Colorado water quality standards and address known contaminants present in groundwater at the DFC.
- Acute whole effluent toxicity (WET) testing requirements have been added to this Permit to comply with Colorado's "free from toxics" narrative water quality criteria.
- The frequency of sampling during a discharge event has been modified to address long-term discharges. After ten weeks of monitoring, if the results continue to show no effluent limit exceedances (for those that have effluent limits) and other permit requirements are met, the Permittee may request in writing, in accordance with Section 6.5 of the Permit, a reduction in monitoring to monthly for certain parameters for that construction project only. Note that flow, pH, and the oil & grease visual observation are not included in this reduction. These will continue to be required at the frequency stated in the monitoring requirements table. The reduction in repetitive monitoring will allow the Permittee to apply their resources to sample a much wider range of pollutants and thus better comply with the 1996 and 1997 Orders on Consent and protect Colorado water quality standards.

3 BACKGROUND INFORMATION

The DFC is located in Lakewood, Colorado. The DFC campus is approximately 623 acres and is bordered by 6th Avenue on the north, Kipling Street on the east, W. Alameda Avenue on the south, and Routt Street on the west (Figure 1).

Ongoing construction, operation, and maintenance at the DFC campus necessitate the discharge of construction dewatering effluent on an intermittent basis. This permit is intended to authorize dewatering discharges from multiple construction projects in areas where there is potentially contaminated groundwater. Wastewater discharged under this Permit will enter the DFC storm sewer system prior to entering McIntyre Gulch.

Figure 1. Facility Location Map

3.1 Applicability

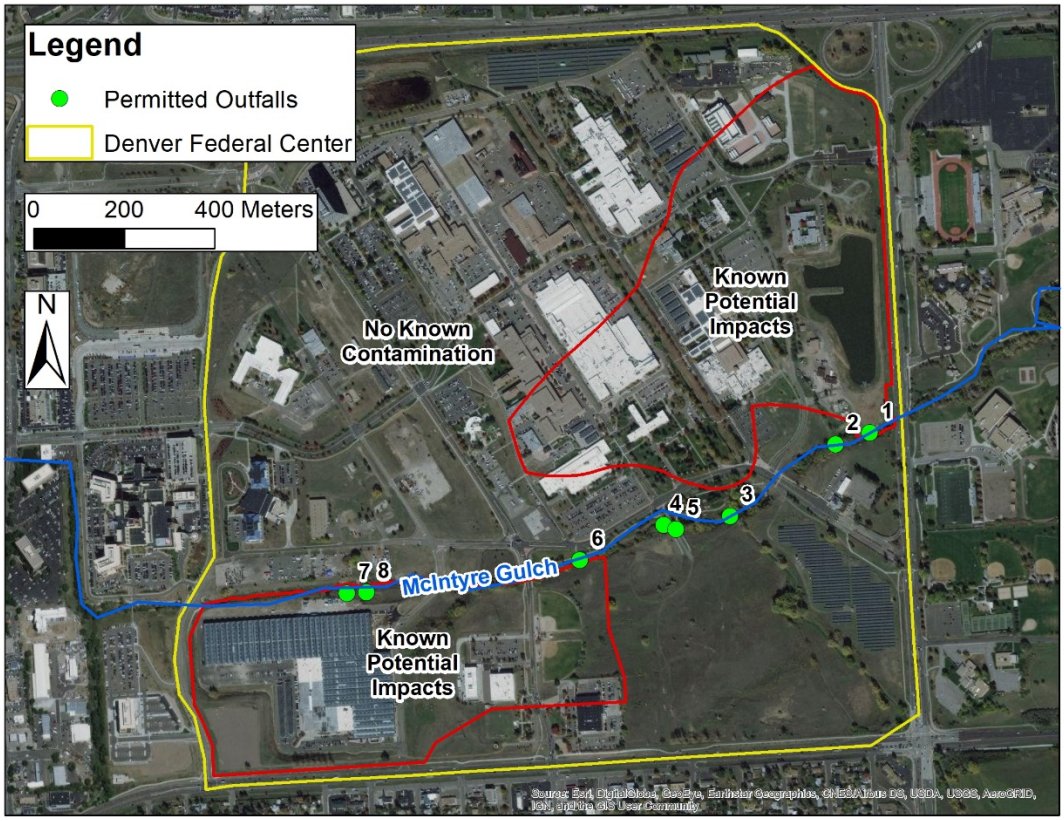
Construction dewatering is a common term used to describe the removal of groundwater or surface water by pumping. This practice is often necessary prior to excavation for foundations or to remove accumulated water from precipitation events which has been in contact with construction activities.

This Permit authorizes the discharge of construction dewatering from all areas of the DFC property where there are "known potential impacts" to groundwater (Figure 2). For the purposes of the Permit, dewatering from these areas represents "contaminated" construction dewatering. While these discharges will be intermittent in nature, the use of a single permit for multiple related activities expedites the process for maintaining permit coverage for several construction projects while maintaining effluent limits which are protective of water quality.

The treatment system for this discharge is not installed at a fixed location. When a construction project is initiated within the areas of known potential impacts, the treatment system will be set up at that location. The treatment system is mobile in that as a new construction project is initiated, a treatment system is set up at that site if needed. This mobile treatment will discharge to one of the permitted outfall locations along McIntyre Gulch (see Section 5.1) depending on the exact location of the construction project. The Permit can provide coverage to multiple construction dewatering projects at the same time within areas of known potential impacts; however, if these construction dewatering projects are discharging concurrently, they must discharge to different outfalls.

This Permit does not authorize discharges of construction dewatering from areas with "no known contamination" (Figure 2). In these cases, EPA's current Construction General Permit (CGP) or a separate individual permit is the appropriate permitting mechanism.

Figure 2. Areas of known potential impacts



3.2 Facility Description

Most of the buildings on the DFC were constructed in 1941 for the Denver Ordnance Plant that produced ammunition in support of World War II. The DFC has since been used by more than 27 different federal agencies. Agencies have used the property for many purposes, including but not limited to, pesticide and herbicide testing, animal testing, landfills (disposal of waste and construction debris), storage of hazardous materials, firing ranges, burn pits, underground storage tanks, a wastewater treatment plant, and disposal of asbestos containing materials.

The Federal Highway Administration (FHWA), an agency of the United States Department of Transportation, occupies part of the DFC pursuant to an agreement with the GSA, and conducts asphalt and other road material testing in a laboratory in Building 52. In the past, FHWA had an approximately 560-gallon underground storage tank (waste tank) located just east of Building 52. The tank was used for the storage of waste 1,1,1-trichloroethane (1,1,1-TCA) and other spent solvents generated by the FHWA during asphalt testing. In 1989, tests were performed on the waste tank and results indicated that the waste tank was leaking. In 1989, FHWA drilled three holes in the vicinity of the waste tank, and soil samples were taken from those holes. Test results indicated the soil was contaminated with 1,1,1-TCA at concentrations as high as 470 mg/L.

In 1991, the Colorado Department of Public Health and the Environment (CDPHE) issued the FHWA, as an operator of a hazardous waste management unit at the DFC, Compliance Order on Consent number 91-01-24-03 that cited the FHWA for on-site disposal of hazardous waste without a permit or interim status. On January 27, 1995, CDPHE amended this Order on Consent with Compliance Order on Consent number 91-01-24-03a.

Information collected on past practices at the DFC and/or the Denver Ordnance Plant, documented in a December 1995 Quantalex Data Review Report, prepared by Ballofet and Associates Inc. for the GSA dated November 22, 1995, along with other documents prepared by the U.S. Army Corps of Engineers and the FHWA assessing the distribution of contaminants in soil and groundwater at the DFC, indicate that there are other sources of contaminated groundwater on the DFC, in addition to the FHWA's former underground storage tank.

On July 18, 1996, the GSA provided the CDPHE with a copy of the draft document entitled "Preliminary Assessment Denver Federal Center, May 24, 1996" in which data on the history and past waste management activities at the former Denver Ordnance Plant and the DFC were evaluated for possible impacts to the environment. Based upon the information in "Preliminary Assessment Denver Federal Center" the CDPHE determined that there has been a release of hazardous waste and hazardous constituents into the environment from the former Denver Ordnance Plant and/or the DFC. Partially as a result of this information, Compliance Order on Consent number 96-04-11-01 (1996 Order on Consent) was issued to GSA to implement a groundwater containment system on the eastern boundary of the DFC to prevent the further off-site migration of groundwater contaminated with hazardous waste or hazardous constituents in excess of established state groundwater standards. The following compounds have been reported from samples taken at the DFC and were specifically identified in the 1996 Order on Consent: 1,1,1-trichloroethane, trichloroethene, 1,1-dichloroethene, tetrachloroethene, vinyl chloride, 1,4 dichlorobenzene, N-nitrosodi-n-propylamine, 1,2,4-trichlorobenzene, 2,4-dinitrotoluene, phenol, 2-chlorophenol, 2-nitrophenol, 4-chloro-3-methylphenol, 4-nitrophenol, pentachlorophenol, acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(l,2,3-cd)pyrene, and phenanthrene.

In 1997, Compliance Order on Consent number 97-07-18-01 (1997 Order on Consent) was issued to GSA for its operation of the DFC, a hazardous waste facility, without having either a state or federal permit or interim status for the treatment. The 1997 Order on Consent required GSA to define, assess and remediate, if necessary, all areas of contamination which have been identified through diligent search which are either presently impacting, or may adversely impact human health and the environment. This requirement applies to contamination that originates from past or present activities at the DFC, regardless of whether it is on-site or beyond the boundaries of the DFC. In so doing, GSA shall identify, evaluate and, if necessary, remediate each specific area where solid wastes, hazardous wastes or hazardous constituents may have been disposed or released to the environment as a result of any activities conducted at the DFC and that part of the former Denver Ordnance Plant which is now the DFC, at any time, regardless of whether the location was intended for the management of those materials. The 1997 Order on Consent identified the same 26 chemicals as the 1996 Order on Consent but added lead and "other heavy metals" to the list.

The DFC has three main solvent plumes in groundwater on the eastern half of the facility, which have been sourced from known locations such as the FHWA's leaking underground storage tank and other

unknown sources such as facilities that were run during the World War II era. These plumes are primarily associated with volatile organic compounds (VOCs) such as 1,1,1-TCA. In the southwest portion of the DFC, there are several more plumes with petroleum and other solvents that are also affecting the groundwater. These plumes are from an unknown source and may originate off-site.

Numerous wells have been drilled to monitor the fate and transport of groundwater contamination plumes both on and offsite of the DFC property. The locations of groundwater contamination plumes within the DFC property have been mapped by GSA per the terms of the 1997 Order on Consent. The Denver Federal Center Municipal Separate Storm Sewer System (MS4) permit (Permit Number COR042004) also required monitoring to determine the extent of groundwater infiltration into the storm sewer system and to determine areas where groundwater was contaminated. Results of the monitoring efforts resulted in a conservative assessment of areas where there are "known potential impacts." Areas where sub-surface investigations and/or soil characterization for disposal have revealed no hazardous pollutants and are presumed to be uncontaminated, for the purposes of this Permit, are defined as areas with "no known contamination" (Figure 2).

The 1996 and 1997 Orders on Consent require that GSA establish schedules and requirements for the remediation of any and all contamination that may pose a threat to human health and the environment. The CDPHE has interpreted this as Safe Drinking Water Act (SDWA) maximum contaminants levels (MCLs) must be met at the property boundary, which has been determined to be the compliance point for compliance orders. The 1996 and 1997 Orders on Consent do not require a specific clean-up or "safe" level for any pollutant.

3.3 Treatment Process

In the permit application, the Permittee indicated that their contractors have used a treatment train consisting of a bag filter to remove sediment followed by granular activated carbon (GAC) to treat the contaminated construction dewatering. In addition, the Permittee has used air stripping in other EPA-issued permits on the DFC (e.g., CO-0035033). The literature suggests that GAC and air stripping can provide high removal rates for a wide variety of pollutants.

EPA recognizes that management options will vary from site-to-site depending on the level and type of contamination encountered. Some excavations may be relatively dry, and the volume of water encountered may be manageable without discharging. Some excavations in the areas where there are "known potential impacts" may have effluent concentrations at or below the effluent limitations in this Permit. Where these are the case, the Permit allows for flexibility provided that the effluent limitations and monitoring requirements in the Permit are met.

While this Permit is written for treatment using GAC, EPA realizes the situation may arise where an alternative treatment system may be better equipped to handle a particular pollutant. Examples might include hydrogen peroxide addition, ultraviolet radiation, etc. EPA's Treatability Database notes a wide variety of portable on-site treatment systems with varying projections of removal efficiencies. The Permit provides flexibility by allowing the use of alternative treatment systems. However, per section 8.1 of the Permit, the Permittee must give notice as soon as possible of any planned physical alterations or additions to the permitted facility meeting the criteria listed in the Permit. This specifically includes when an alteration (or alternative treatment system) could significantly change the nature or increase the quantity of pollutant discharged including pollutants not subject to effluent

limitations in the Permit. Since a change to the treatment system (e.g., adding hydrogen peroxide treatment or adding any other treatment chemical) could potentially change the pollutants in the effluent, any changes in the treatment system will require notification to EPA. EPA may impose additional monitoring requirements or effluent limitations to ensure that the chemicals used in the treatment system are not present in the effluent in quantities that could have the reasonable potential to cause or contribute to an exceedance of water quality standards.

3.4 Chemicals Used

The Permittee currently uses GAC for their treatment system. EPA does not consider organic carbon to be a pollutant of concern.

As discussed in section 3.3, if the Permittee plans to use an alternative treatment system, they will have to provide notice to EPA as soon as possible. EPA may impose additional effluent limits and/or monitoring requirements to ensure that these pollutants used in the treatment process are not present in the effluent in quantities that have the reasonable potential to cause or contribute to an exceedance of water quality standards.

4 PERMIT HISTORY

According to EPA records, this renewal is the 2nd issuance of this NPDES permit. The original permit became effective on January 1, 2015 and was set to expire on December 31, 2019. However, the GSA submitted a permit renewal application in a timely manner, and so the previous permit was administratively continued.

4.1 Discharge Monitoring Report (DMR) Data

The dewatering operation is an intermittent discharger that only discharges when there is ongoing construction that requires dewatering activities. The Permittee reported discharges at Outfall 001 in 2016-2018 during the previous permit cycle (Table 1). The Permittee did not report any discharges at Outfalls 002 through 008 during the previous permit cycle. The Permittee reported two violations of the TSS limit (March 2016 and June 2018) and one violation of the oil and grease limit (March 2016) at Outfall 001. According to the Permittee, the initial discharge (March 2016) had some issues with dirty piping and was quickly shut down while the issues were fixed. The Permittee also reported all non-detects as ‘0’s, per guidance from EPA.

Table 1. Summary of the GSA dewatering operation's DMR Data (2015-2020) for Outfall 001 from EPA's Integrated Compliance Information System (ICIS) database (data accessed April 2020)

Parameter	Permit Limit(s)	Reported Average	Reported Range	Number of Data Points	Number of Violations
Flow, mgd	-	0.08	0.0 – 0.25	11	-
Total Suspended Solids (TSS), mg/L	45	27	0 – 72	11	2
Benzene, Toluene, Ethylbenzene, and Xylene (BTEX), µg/L	100	0.1	0 – 1	11	0
Benzene, µg/L	5.0	0.1	0 – 1	11	0
1,1-Dichloroethane, µg/L	700	0.55	0 – 4.62	11	0
1,1-Dichloroethene, µg/L	7.0	0.1	0 – 1	11	0
Trichloroethene (TCE), µg/L	5.0	0.1	0 – 1	11	0
1,1,1-trichloroethane (1,1,1-TCA), µg/L	200	0.1	0 – 1	11	0
Vinyl chloride, µg/L	2.0	0.01	0 – 0.11	11	0
pH, standard units	6.5-9.0 a/	7.6 b/	6.9 – 8.5	11	0
Oil & Grease, mg/L	10	7.6	0 – 83.4	11	1
Oil and Grease, visible observation of sheen	No visible sheen allowed	-	No visible sheen observed	11	0

a/ Limitation is a range, pH shall not to be less than 6.5 nor greater than 9.0 standard units at any time.
b/ Median reported pH.

4.2 Inspection History

This operation has not been inspected since the last permit was issued in January 2015.

5 WATER QUALITY CONSIDERATIONS

5.1 Outfall Locations

The exact location of dewatering activities will depend on where the construction site is located. This Permit authorizes the discharge of wastewater to eight (8) outfalls (Table 2 and Figure 2). These outfalls are all stormwater outfalls to McIntyre Gulch.

Table 2. Outfall Locations

Outfall	Latitude (° N)	Longitude (° W)
001	39.7172	105.1105
002	39.7170	105.1114
003	39.7157	105.1142
004	39.7156	105.1159
005	39.7155	105.1156
006	39.7150	105.1181
007	39.7146	105.1241
008	39.7146	105.1236

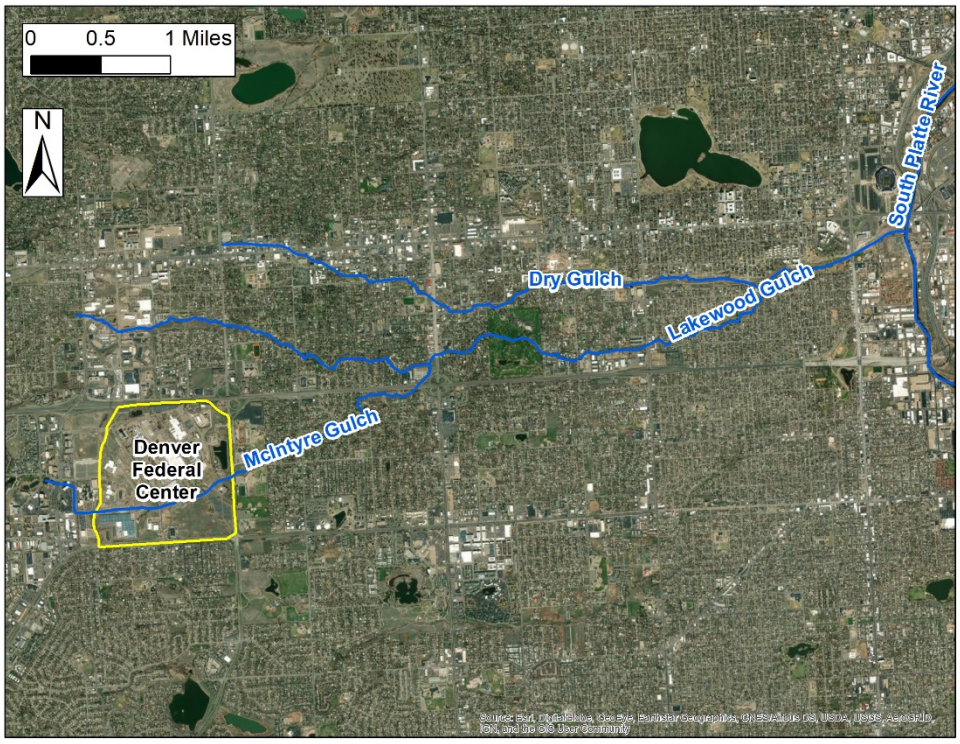
The authorization to discharge under this Permit is limited to these specific outfalls. However, the Permit allows for some flexibility by allowing outfalls to be moved without reopening the Permit provided all of the following are met:

1. The new outfall location is within 0.25 miles (1,320 feet) of the existing outfall location;
2. McIntyre Gulch remains the receiving water for the new outfall;
3. There is no change to affected landowners; and
4. Notification of the change in outfall location is provided to EPA **prior** to any discharges to the new outfall location.

5.2 Description of Receiving Water

Discharges from the DFC will enter GSA's storm sewer system and discharge through eight outfalls into McIntyre Gulch (Figure 2). McIntyre Gulch is located within USGS HUC 10190002 (Upper South Platte). It flows approximately two miles from the DFC before discharging into Lakewood Gulch. Lakewood Gulch flows approximately five miles from its confluence with McIntyre Gulch before entering the South Platte River just south of the Empower Field at Mile High Stadium near downtown Denver (Figure 3).

Figure 3. Stream Network downstream of McIntyre Gulch



McIntyre Gulch does not have any continuous USGS gages on it, but the USGS did collect approximately 50 to 100 flow measurements both upstream and downstream of the DFC on McIntyre Gulch between 1996 and 2000. The median flow in the vicinity of the DFC was approximately 1 cubic foot per second (cfs) during this time (although it ranged from 0.2 cfs to 73 cfs). According to the Permittee, McIntyre Gulch is a perennial stream with continuous surface flow in the channel. The Permittee also says it tends to flow at baseflow conditions much of the year and then quickly increase in flows during precipitation events. Based on this limited dataset, it is not possible to calculate a chronic or acute low flow at this location. However, for another permit written for the DFC (CO-0035033), the local water commissioner was contacted to obtain an estimate of the low flow for McIntyre Gulch. Per the state of Colorado, this is a common practice in the absence of sufficient flow data. Communication with the local water commissioner resulted in the adoption of 0.2 cfs as the chronic low flow condition for the McIntyre Gulch stream segment and will be used for subsequent analysis. The state of Colorado uses the 30E3 (also known as the 30B3) as the chronic low flow condition, which is the empirical biologically-based chronic 30-day low flow over a 3-year period of record.

6 PROPOSED PERMIT LIMITATIONS

6.1 Technology Based Effluent Limitations (TBELs)

6.1.1 Federal TBELs

There are no applicable Federal Effluent Limitation Guidelines for this type of wastewater discharge (i.e., groundwater remediation and dewatering). Since there are no Federal Effluent Limitation

Guidelines, other federal guidance has been used to derive technology based effluent limits for organic pollutants that do not have an applicable water quality standard adopted by the state of Colorado. See section 6.4.2 for more information.

6.1.2 State TBELs

Colorado Regulation Number 61 – Colorado Discharge Permit System – defines technology-based effluent limitations as: all applicable state effluent limitations adopted in Colorado Regulation Number 62 – Regulations for Effluent Limitations, effluent limitations adopted for categorical industrial users adopted by EPA, applicable standards and criteria in 40 CFR Part 125, applicable toxic pollutant standards in 40 CFR Part 129, and best professional judgment.

Colorado Regulation Number 62 establishes the following numeric limits for when the parameter may, without treatment, be present in the discharge at a level approaching the relevant limit (Table 3). These can be found in section 62.5 of Regulation Number 62.

Due to the nature of the discharge, biochemical oxygen demand (BOD_5), carbonaceous biochemical oxygen demand ($CBOD_5$), and residual chlorine are not considered to be pollutants of concern (POCs). This is not a domestic wastewater treatment facility, and these pollutants would not be present in this groundwater at levels approaching the relevant limits. Chlorine is not used in the treatment process. Therefore, no BOD_5, $CBOD_5$ or residual chlorine effluent limits or monitoring will be required.

Colorado Regulation Number 61 also requires that all pollutants (with a few exceptions) shall have limitations expressed in terms of either concentration and mass or concentration and flow. Since there are no limitations in terms of mass in this Permit, a flow limit will be included.

Table 3. Specific Limitations for the Discharge of Pollutants per Colorado Regulation Number 62 (62.5[1])

PARAMETER	**PARAMETER LIMITATIONS**		
	30-Day Average	7-Day Average	Instantaneous Maximum
Biochemical Oxygen Demand (BOD_5)	30 mg/L	45 mg/L	N/A
Total Suspended Solids (TSS)	30 mg/L	45 mg/L	N/A
Carbonaceous Biochemical Oxygen Demand ($CBOD_5$)	25 mg/L	40 mg/L	N/A
Residual Chlorine	N/A	N/A	0.5 mg/L
pH	N/A	N/A	6.0 - 9.0 standard units
Oil and Grease	N/A	N/A	10 mg/L

6.2 Water Quality Based Effluent Limitations (WQBELs)

The dewatering operation discharges into McIntyre Gulch, which is a tributary of Lakewood Gulch, which in turn is a tributary of the South Platte River. Since the discharge is anticipated to be intermittent and short-term in nature, only water quality standards for the immediate receiving water (McIntyre Gulch) were considered. This assumption will be reviewed during the next permit renewal. A general description of the receiving water can be found in section 5.2. The receiving water is within the state of Colorado and thus state of Colorado water quality standards (WQS) apply.

Colorado's water quality standards are established to protect both aquatic life and human health (based on consumption of organisms and/or water). When both criteria apply, EPA considers the more stringent of the two for final WQBELs. The state of Colorado also implements total maximum daily loads (TMDLs) to address waters that are impaired. Colorado's relevant water quality standards and TMDLs are further discussed in this section.

6.2.1 Colorado Regulation Number 31 – The Basic Standards and Methodologies for Surface Water

Colorado Regulation Number 31 provides basic standards, an antidegradation rule and implementation process, and defines beneficial uses. It is the basis for the water quality standards assigned to these stream segments in Colorado Regulation Number 38.

6.2.2 Colorado Regulation Number 38 – Classifications and Numeric Standards for South Platte River Basin, Laramie River Basin, Republican River Basin, Smoky Hill River Basin

Colorado Regulation Number 38 provides basic, narrative, and numeric water quality criteria for the specific stream segments affected by the Permit. According to this regulation, McIntyre Gulch is within segment 16c of the South Platte River (COSPUS 16c). COSPUS 16c is described as "all tributaries to the South Platte River, including all wetlands, from the outlet of Chatfield Reservoir, to a point immediately below the confluence with Big Dry Creek, except for specific listings in the subbasins of the South Platte River, and in Segments 16a, 16d, 16e, 16f, 16g, 16h, 16i, 16j, and 16k." Classifications and designations are listed below for

- Classifications: Agriculture, Aquatic Life Warm 2, Recreation E
- Designation: Use Protected

Classifications and Designations are defined in Colorado Regulation Number 31 and these definitions are provided below:

Agriculture: These surface waters are suitable or intended to become suitable for irrigation of crops usually grown in Colorado and which are not hazardous as drinking water for livestock.

Aquatic Life: These surface waters presently support aquatic life uses as described below, or such uses may reasonably be expected in the future due to the suitability of present conditions, or the waters are intended to become suitable for such uses as a goal:

- *Class 2 – Cold and Warm Water Aquatic Life: These are waters that are not capable of sustaining a wide variety of cold or warm water biota, including sensitive species, due to*

> *physical habitat, water flows or levels, or uncorrectable water quality conditions that result in substantial impairment of the abundance and diversity of species.*

Recreation (Class) E: These surface waters are used for primary contact recreation or have been used for such activities since November 28, 1975.

Use Protected designation: The purpose of these provisions is to identify waters whose quality is not better than the federal "fishable, swimmable" goal, and which therefore are appropriately not subject to the antidegradation review process.

6.2.3 Colorado Regulation Number 61 and 62 – Regulations for Effluent Limitations

These are covered in section 6.1 – Technology-based Effluent Limitations

6.2.4 Colorado Regulation Number 85 – Nutrients Management Control Regulation

The state of Colorado's *Nutrients Management Control Regulation* establishes technology based effluent limitations and monitoring requirements for total inorganic nitrogen and total phosphorus for certain non-domestic wastewater treatment works (i.e., industrial discharges). The effluent limitations for non-domestic wastewater treatment works apply to:

1. Non-domestic dischargers with a Standard Industrial Classification code in the Major Group 20 (SIC 20); and
2. Any other non-domestic discharger for which the Division has determined, based on credible information that the facility is expected, without treatment for nutrients, to discharge total inorganic nitrogen or total phosphorus concentrations to surface waters in excess of the effluent limitations in section 85.5(2)(a)(ii)(B).

However, there is an exception in 85(3)(b):

The numerical effluent limitations set forth in sections 85.5(1)(a)(iii), 85.5(1)(b), and 85.5(2) shall not apply under the following circumstances…Where discharges consist solely of ground water that is pumped for the purpose of dewatering a construction site or for building sumps so long as no phosphorus or nitrogen is added to the ground water being discharged.

Since the discharge consists solely of groundwater, and the treatment processes do not add any nitrogen or phosphorus, nitrogen and phosphorus effluent limitations and monitoring will not be required in this Permit.

6.2.5 Colorado Water Quality Policy 24 – Implementing Narrative Standards in Discharge Permits for the Protection of Irrigated Crops

EPA found it appropriate to evaluate this policy for the Permit. The purpose of this policy is to provide additional guidance to the development of effluent limits, under two narrative standards, for permitting discharges to surface waters that subsequently are diverted to crop irrigation. The scope of this guidance is limited to two measures of dissolved salts (electrical conductivity [EC] and sodium adsorption ratio [SAR]) that can be used to further protect the downstream suitability of state waters

for crop irrigation. This policy applies to any stream segments that are assigned an agricultural beneficial use.

However, in the case of McIntyre Gulch, there is no actual crop irrigation use of the stream. Aerial photography clearly shows that with the exception of two or three parks and a golf course, the stream and surrounding areas are completely urbanized (Figure 3). No irrigated crops are grown in the area using water from McIntyre Gulch, so per Table 3 of Water Quality Policy 24, this policy does not apply. Therefore, EC and SAR effluent limitations and monitoring will not be required in this Permit.

6.2.6 Stream Impairments and Total Maximum Daily Loads (TMDLs)

Currently, segment 16c (which includes McIntyre Gulch) is on the 303(d) list as impaired for *E. coli* and dissolved selenium. These listings are both in category 5, which is defined as "impaired without a TMDL completed." Thus, there are no TMDLs developed for McIntyre Gulch at this time. The listing priority for *E. coli* is "High", and the listing priority for dissolved selenium is "Low." *E. coli* is not considered a pollutant of concern at this facility. Selenium is considered a pollutant of concern and monitoring requirements have been added to the Permit (see section 6.4.7).

McIntyre Gulch discharges to Lakewood Gulch, which then discharges to the South Platte River. The state of Colorado does not have any 303(d) listings or TMDLs for Lakewood Gulch. The state of Colorado has implemented several TMDLs for the South Platte River downstream of this facility, including TMDLs for *E. coli*, cadmium, nitrate, and dissolved oxygen. This discharge is not assigned a wasteload allocation (WLA) in any of these TMDLs, and a review of background and monitoring well data at the DFC indicates that *E. coli*, nitrate, and dissolved oxygen are not pollutants of concern at this facility. Cadmium is considered a pollutant of concern and monitoring requirements have been added to the Permit (see section 6.4.7). The Permit contains a reopener provision that could be used if a WLA is developed via a TMDL for this watershed or a downstream watershed in the future.

6.3 RCRA Orders on Consent

As discussed in section 3.2, a 1996 Order on Consent addressed groundwater plumes migrating east off-site of the DFC, and a 1997 Order on Consent addressed general clean-up and mitigation of pollutants in the soils and groundwater. While neither Order on Consent directly addressed dewatering activities discharging to McIntyre Gulch, the 1996 and 1997 Orders on Consent require the contamination at the DFC not pose a threat to human health and the environment. Discharging contaminated groundwater to a surface stream in urban Denver could pose a threat, and therefore, this Permit addresses the Orders on Consent.

Both Orders on Consent identified the same 26 chemicals as known present (see section 3.2 for the complete list). These include VOCs and SVOCs. In addition, the 1997 Order on Consent includes lead and "other heavy metals" as known present. These compounds are considered pollutants of concern and will be addressed in the Permit.

The CDPHE has interpreted the avoidance of threat to human health and the environment to mean that Safe Drinking Water Act maximum contaminant levels (MCLs) must be met at the property boundary. Therefore, the water quality-based effluent limits in this Permit are implemented as end-of-pipe limits using the MCL. Table 4 outlines the MCLs for VOCs included with effluent limitations in this Permit. These MCLs are also listed in Colorado Regulation Number 31.

Table 4. MCLs for VOCs included in the Permit effluent limitations

Pollutant	MCL (µg/L)
Benzene	5
1,1-Dichloroethene	7
1,1,1-Trichloroethane (1,1,1-TCA)	200
Vinyl Chloride	2
Trichloroethene (TCE)	5

6.4 Justifications and Reasonable Potential Determinations for Final Effluent Limitations and Monitoring Requirements

6.4.1 Groundwater Data from the DFC

This Permit authorizes discharges from the same set of contaminant plumes that several other EPA-issued NPDES permits address (i.e., NPDES permits CO-0034860 and CO-0035033), *plus* discharges from additional contaminant plumes with other pollutants of concern. Therefore, this Permit considers a broader range of pollutants than other EPA-issued permits on the DFC. To determine how broad this consideration should be, additional data from the GSA was reviewed to better characterize the groundwater in the areas of "known potential impacts."

The GSA provided EPA with a representative dataset of the contaminated source water containing over 17,000 water quality sampling events for 146 different compounds. These sampling events took place at the DFC in the areas with "known potential impacts" over the last 20 years. This dataset provides a good base to characterize the influent to the dewatering system, and this provides an estimate of potential contaminants in the effluent.

A qualitative analysis of pollutants of concern was performed on these groundwater samples to determine which ones could, *without treatment*, represent a potential exceedance of surface water quality standards. Surface water quality standards were used for this groundwater because the groundwater is being transferred to and discharged to surface water. It is also important to note that these are untreated groundwater samples and *not treated effluent samples*, so this is not a standard reasonable potential exercise where effluent limits would be assigned. The point of this exercise is simply to determine what pollutants of concern should be monitored in the effluent.

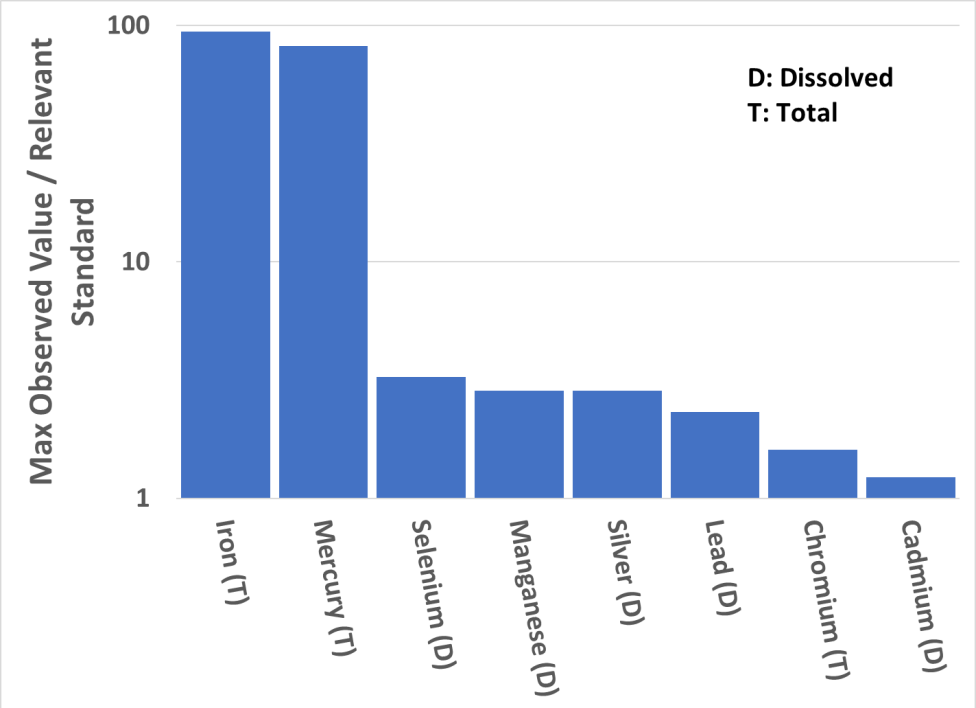
Colorado's water quality standards for most heavy metals are hardness dependent. To determine a hardness to use in the calculation of water quality standards, EPA's Water Quality Portal was used to access ambient data for McIntyre Gulch and Lakewood Gulch. While there was no hardness data for McIntyre Gulch, EPA found 56 hardness measurements from Lakewood Gulch. The 25th percentile of this dataset (180 mg/L) was used to determine hardness dependent metals water quality standards

for use in a reasonable potential analysis. This is a slightly conservative approach, as metals water quality standards increase with increasing hardness.

Of the 146 compounds analyzed in the untreated groundwater, eight were detected in quantities that exceed applicable water quality standards (Figure 4). All eight compounds are heavy metals (selenium is technically a metalloid but is commonly grouped with heavy metals due to its chemical and physical properties). Lead and "other heavy metals" are included in the 1997 Order on Consent as potentially present.

These eight compounds are considered pollutants of concern.

Figure 4. Pollutants of Concern at the DFC Based on Groundwater Monitoring



6.4.2 Volatile Organic Compounds (VOCs)

Eight VOCs were listed in the final 1996 Order on Consent as existing at elevated concentrations in groundwater and sediments. These include 1,1,1-trichloroethane, trichloroethene, 1,1-dichloroethene, tetrachloroethene, vinyl chloride, 1,4 dichlorobenzene, N-nitrosodi-n-propylamine, and 1,2,4-trichlorobenzene. The previous permit included effluent limits for seven VOCs (four from the above list plus three additional ones), and these will be retained in this Permit. The four compounds on the above list that were not addressed in the previous permit are further discussed later in this section.

Of the seven VOCs with previous effluent limits, five of these effluent limits are based on the MCLs in Table 4, which are listed in Colorado Regulation Number 31. No MCLs have been adopted for BTEX or 1,1-dichloroethane (1,1-DCA). The effluent limits for these two pollutants are described further below.

The effluent limit for BTEX is based on EPA's *Model NPDES Permit for Discharges Resulting from the Cleanup of Gasoline Released from Underground Storage Tanks* and *Fact Sheet, NPDES Permit Number: ID-G91-0000*. This document recommends a total BTEX limit of 100 µg/L based on an air stripping removal efficiency of 99.5%. Since neither EPA nor the state of Colorado have water quality standards for BTEX that would be more strict than 100 µg/L, this value is considered protective and will remain in the Permit to avoid anti-backsliding concerns (see section 6.7).

The effluent limit of 700 µg/L for 1,1-DCA is based on a statement from the previous permit, "The limitation for 1,1-dichloroethane is based on a state of Colorado Groundwater Equivalent Standard for human health risk." The documentation, calculations, and other bases for this value are not available in the administrative record, and the CDPHE was unable to verify what document this referred to. The Permittee provided an older spreadsheet, which had the following note associated with the value of 700 µg/L for 1,1-DCA "*Groundwater Standard Equivalent from 09/10/2001 update of "Residential Scenario Soil Remediation Objectives" document supplied by CDPHE. These values have no regulatory authority, are not peer-reviewed or promulgated, and the process used in their derivation may or may not be considered acceptable. If a compound is reported as detected for which there are no groundwater criteria specified in this table, CDPHE may calculate a groundwater equivalent value.*" Based in this note, it appears that this value was derived from soil remediation objectives and CDPHE at one time calculated a non-binding groundwater equivalent standard for 1,1-DCA. Since neither EPA nor the state of Colorado have water quality standards for 1,1-DCA that would be more stringent than 700 µg/L, this value is considered protective and will remain in the Permit to avoid anti-backsliding concerns (see section 6.7).

The four VOC compounds identified in the 1996 Order on Consent that were not included in the previous permit are 1,4-dichlorobenzene, N-nitrosodi-n-propylamine, tetrachloroethene (PCE), and 1,2,4-trichlorobenzene. The GSA database contains little or no monitoring data for most of these compounds. Two of them – PCE and 1,2,4-trichlorobenzene – have applicable water quality standards in McIntyre Gulch. To determine if reasonable potential exists to cause or contribute to an exceedance of Colorado water quality standards, monitoring for these two pollutants will be required in the Permit.

6.4.3 Semivolatile Organic Compounds (SVOCs)

SVOCs include polycyclic aromatic hydrocarbons (PAHs), phenols, and other organic compounds that tend to have a higher molecular weight and a higher boiling point temperature than VOCs. Eighteen SVOCs were listed in the final 1996 Order on Consent as existing at elevated concentrations in groundwater and sediments at the DFC. These are further described in the next three sections.

6.4.3.1 PAHs

Eleven PAHs were listed in the final 1996 Order on Consent as existing at elevated concentrations in groundwater and sediments at the DFC. These include acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, indeno(l,2,3-cd)pyrene, and phenanthrene. These pollutants were not included in the previous permit as effluent limits or monitoring requirements.

McIntyre Gulch has aquatic life based water quality standards for two of these compounds – acenaphthene and fluoranthene – plus standards for a third PAH that was not included in the 1996 Order on Consent (naphthalene). A review of the untreated groundwater data from GSA shows that there are nearly 100 monitoring samples for each of these three compounds. Maximum concentrations for all three are over three orders of magnitude below the applicable water quality standard. Based on this, reasonable potential does not exist to cause or contribute to an exceedance of Colorado water quality standards. Monitoring for these pollutants will not be required in the Permit.

6.4.3.2 Phenols

Six phenol compounds were listed in the final 1996 Order on Consent as existing at elevated concentrations in groundwater and sediments. These include phenol, 2-chlorophenol, 4-chloro-3-methylphenol, 2-nitrophenol, 4-nitrophenol, and pentachlorophenol. These pollutants were not included in the previous permit as effluent limits or monitoring requirements. McIntyre Gulch has aquatic life based water quality standards for four of these six compounds.

The GSA has not monitored groundwater or effluent at the DFC for phenol compounds. To determine if reasonable potential exists to cause or contribute to an exceedance of Colorado water quality standards or to violate the 1996 Order on Consent, monitoring for these six pollutants will be required in the Permit.

6.4.3.3 Other SVOCs

One additional SVOC was listed in the final 1996 Order on Consent as existing in elevated concentrations in groundwater and sediments: 2,4-dinitrotoluene. This pollutant was not included in the previous permit as an effluent limit or monitoring requirement, nor did the GSA database contain any monitoring data for this compound.

However, McIntyre Gulch does not have a water quality standard for 2,4-dinitrotoluene. Based on this, reasonable potential does not exist to cause or contribute to an exceedance of Colorado water quality standards. Monitoring for this pollutant will not be required in the Permit.

6.4.4 Heavy Metals

Lead and “other heavy metals” are included in the 1997 Order on Consent as potentially present. While the term “heavy metal” does not have a formal definition, most uses of the term include about 22 metals, with the metalloids arsenic and selenium usually included.

With that in mind, a review of the untreated groundwater monitoring data from GSA indicates that lead and several other heavy metals are present at concentrations that exceed water quality standards (Figure 4). When compared to a calculated water quality standard (see section 6.4.1), eight metals were found in the groundwater to be present in quantities that exceed water quality standards. These were cadmium, chromium, iron, lead, manganese, mercury, selenium, and silver. Three additional heavy metals (copper, nickel, and zinc) have not been monitored at the DFC, but do have applicable surface water quality standards for this stream segment, and are typically found in water containing other heavy metals. Thus, these three were included as pollutants of concern. To determine if

reasonable potential exists to cause or contribute to an exceedance of Colorado water quality standards, monitoring for these 11 heavy metals will be required in the Permit.

6.4.5 Per- and Polyfluoroalkyl Substances (PFAS)

Prior to 1975, the DFC had its own Fire Department which was housed in DFC Building 44. The DFC stopped having onsite fire services in 1975. Since the DFC Fire Department was eliminated, fire protection services have been provided by Lakewood/Bancroft, which became the current West Metro Fire Authority. Even though aqueous film-forming foam (AFFF) was developed in the mid-1960s, the DFC Fire Department never used AFFF. Prior to joining GSA, the Regional Fire Protection Engineer was a command officer with the Lakewood/Bancroft and West Metro Fire Authority. During his tenure from 1970 to 2002, he indicated that AFFF was never used at the DFC.

For the last two years, the Hazardous Waste Corrective Action Unit of the Hazardous Materials Division of CDPHE has required each of the regulated RCRA Corrective Action Facilities in Colorado that are considered to have a high potential to have used PFAS containing compounds at the property to conduct groundwater screening for PFAS constituents. The Hazardous Materials Division did not require GSA to conduct a PFAS groundwater screening at the DFC, because they believe there is a very low probability that chemicals that contain or breakdown to PFAS constituents were ever used at the DFC.

Based on this information, EPA is not requiring PFAS monitoring in this Permit at this time. However, the CDPHE has recently finalized a new water quality policy regarding PFAS (Water Quality Policy 20-1, July 2020). The CDPHE may provide additional input on their new policy during the 401 certification process.

6.4.6 Flow

The previous permit did not contain a flow limit. To comply with Colorado Regulation Number 61, all pollutants (with a few exceptions) shall have limitations expressed in terms of either concentration and mass or concentration and flow. Since there are no limitations in terms of mass in this Permit, a flow limit will be added.

This operation is an intermittent discharger, with discharge occurring when and where dewatering is required. For example, during the last permit cycle, the Permittee only discharged for 11 quarters within the 20 quarter permit cycle. Dewatering flows may also be seasonally based, with higher discharges during periods of the year when groundwater tables have risen.

The Permittee reported a max discharge value of 0.13 million gallons per day (mgd) in their permit application. This will be used for the Permit 30-day average effluent limitation. This will be implemented as a Permit flow limit applied as a 30-day average limit for the sum of all eight outfalls and not per outfall.

6.4.7 Oil and Grease

An oil and grease limit of 10 mg/L daily maximum was included in the previous permit per Colorado Regulation Number 62 (Table 3). This effluent limit will be carried over into the renewal.

6.4.8 pH

A pH range limit of 6.5-9.0 was included in the previous permit, and this will be carried over into the renewal. This is based on the water quality standard for stream segment COSPUS16c. This water quality standard is more protective than the TBEL from Colorado Regulation Number 62 (Table 3).

6.4.9 Total Suspended Solids (TSS)

The previous permit contained a daily maximum TSS limit of 45 mg/L. This is not protective of Colorado water quality standards, as Regulation Number 62 requires a 30-day average TSS value of 30 mg/L and a 7-day average TSS value of 45 mg/L (Table 3). To address this issue, the Permit will contain a 30-day average effluent limit of 30 mg/L and a 7-day average effluent limit of 45 mg/L. Since the sampling frequency for TSS is weekly, both a weekly and monthly limit will be used. This will comply with Colorado water quality standards and is more in line with other EPA-issued permits at the DFC (e.g., CO-0035033). Because removing the daily maximum limit of 45 mg/L could be considered less stringent in certain situations, changes to TSS limits are further addressed in section 6.7 (anti-backsliding).

6.4.10 Temperature

An effluent limit for temperature is not included in this Permit. This Permit discharges groundwater, which is typically cooler than ambient surface temperatures in the summer and warmer than ambient surface temperatures in the winter. There is no reasonable potential for this discharge to impact temperature water quality standards.

6.4.11 Whole Effluent Toxicity (WET) Monitoring

Many toxic pollutants have cumulative effects on aquatic organisms that cannot be detected by individual chemical testing. However, laboratory tests can measure toxicity directly by exposing living organisms to the wastewater and measuring their responses. These tests measure the aggregate toxicity of the whole effluent, so this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Groundwater at the DFC is contaminated with multiple chemicals. Most of these chemicals are considered toxics, and many do not have MCLs or surface water quality standards for the protection of aquatic life or human health. Thus, there is no clear indicator that toxicity would not be present below a certain concentration. Due to bioaccumulation of chemicals and toxicity in aquatic organisms, the potential for aggregate effects, and persistence of the chemicals in the discharge, EPA has determined that reasonable potential exists to violate the state of Colorado "free from toxics" narrative water quality criterion found at Colorado Regulation 31.11.

Therefore, the requirement to perform acute WET testing is being added to the Permit. Acute WET testing shall be performed once per construction project by the Permittee for two species: *Ceriodaphnia dubia* and *Pimephales promelas*. If WET testing confirms reasonable potential to cause or contribute to an exceedance of the narrative standards, the Permit may be reopened to include a WET limitation. Specific WET requirements are outlined in the Special Conditions section of the Permit (section 5).

Hardness requirements for WET testing in the Permit were determined by the receiving water quality data in Lakewood Gulch (there was no available hardness data in McIntyre Gulch). Based on 56 samples, the receiving water hardness ranges from approximately 180 to 300 mg/L, with a median value of 230 mg/L. Based on this, the dilution water used for the test shall be "hard" synthetic laboratory grade water, consistent with EPA WET manual laboratory specifications.

6.5 Final Effluent Limitations

Applicable technology based and water quality based effluent limits were compared, and the most stringent of the two was selected for the following effluent limits (Table 5).

Table 5. Effluent Limitations – Outfall 001 through 008

NOTE: This table was modified during public comment and the 401 certification process. It may not match the justifications and reasoning presented above. See Addendum for further clarification.

Characteristic	30-Day Average a/	7-Day Average a/	Daily Maximum a/	Limit Basis b/
Flow, mgd	0.13 c/	n/a	n/a	CO Reg No. 62
Total Suspended Solids, mg/L	30	45	n/a	CO Reg No. 62
Benzene, µg/L	n/a	n/a	5.0	MCL
BTEX, µg/L	n/a	n/a	100	PP d/
1,1-Dichloroethane (1,1-DCA), µg/L	n/a	n/a	700	PP d/
1,1-Dichloroethene (1,1-DCE), µg/L	n/a	n/a	7.0	MCL
1,1,1-Trichloroethane (1,1,1-TCA), µg/L	n/a	n/a	200	MCL
Trichloroethene (TCE), µg/L	n/a	n/a	5.0	MCL
Vinyl Chloride, µg/L	n/a	n/a	2.0	MCL
Cadmium (Cd), potentially dissolved, µg/L e/	1.1	n/a	4.7	401 Cert
Chromium (Cr), Trivalent, total recoverable, µg/L f/	100	n/a	n/a	401 Cert
Copper (Cu), potentially dissolved, µg/L e/	15	n/a	23	401 Cert
Iron (Fe), total recoverable, µg/L	1,000	n/a	n/a	401 Cert
Lead (Pb), potentially dissolved, µg/L e/	4.7	n/a	122	401 Cert
Manganese (Mn), potentially dissolved, µg/L e/	2,006	n/a	3,631	401 Cert
Mercury (Hg), total recoverable, µg/L	0.01	n/a	n/a	401 Cert

Characteristic	30-Day Average a/	7-Day Average a/	Daily Maximum a/	Limit Basis b/
Selenium (Se), potentially dissolved, µg/L e/	4.6	n/a	18.4	401 Cert
Silver (Ag), potentially dissolved, µg/L e/	0.88	n/a	5.6	401 Cert
Zinc (Zn), potentially dissolved, µg/L e/	207	n/a	273	401 Cert
Oil and Grease – no sample shall exceed 10 mg/L				CO Reg No. 62
The pH of the discharge shall not be less than 6.5 and shall not be greater than 9.0 at any time.				CO Reg No. 38

a/ See section 1 of the Permit for definition of terms.
b/ MCL: Maximum Contaminant Level for drinking water, PP: Previous Permit, 401 Cert: 401 Certification condition required by CDPHE
c/ This flow limit is applied as a 30-day average limit for the sum of all outfalls under the Permit, and not per outfall.
d/ The limitations for BTEX and 1,1-dichloroethane (1,1-DCA) are based on the previous permit. See section 6.4.2 for further explanation.
e/ The term "potentially dissolved" metals is defined in section 1 of the Permit.
f/ Total chromium monitoring and reporting will be allowed to show compliance with the total trivalent chromium effluent limit. Specific monitoring of total trivalent chromium is not required in the Permit.

6.6 Antidegradation

Discharges from the GSA dewatering operation are existing, and no changes to effluent quality are proposed. No exceedances of numeric or narrative state water quality standards are allowed in the Permit. An antidegradation review is not necessary for McIntyre Gulch per Colorado's Antidegradation Policy, because the receiving stream is a use protected water, and use protected waters are not subject to antidegradation review.

The CDPHE's policy is to consider any downstream waters that the effluent will reach in the antidegradation review. McIntyre Gulch flows approximately two miles from the DFC before discharging into Lakewood Gulch. Lakewood Gulch flows approximately five miles from its confluence with McIntyre Gulch before discharging into the South Platte River. Although this short-term and intermittent discharge is not expected to affect Lakewood Gulch, to be conservative an antidegradation analysis was completed for Lakewood Gulch because Lakewood Gulch is only a few miles downstream of the DFC and is not much larger than McIntyre Gulch. This antidegradation review followed the procedures outlined in *Antidegradation Significance Determination for New or Increased Water Quality Impacts*.

The Permit does not contain any permit limit increases or new water quality impacts. According to the *Antidegradation Review Process Overview* (Figure 1 in the above-referenced document), the *Screening Process – Is there a New or Increased WQ Impact?* (Figure 2 in the above-referenced document) is used to determine if there is a new or increased water quality impact. This flowchart

requires comparing the current and proposed design flows and discharge concentrations/effluent limits.

The design flow of the facility is calculated to be 0.13 mgd. This has not changed from the previous permit, and thus this is the existing (implied) design flow as well as the new design flow. The new water quality-based effluent limit [$WQBEL_{new}$] and the current authorized discharge concentration [Existing Limit] are the same. Nothing has changed from the previous permit to this Permit (with the exception of additional effluent limitations and monitoring requirements). Therefore, the potential new discharge load [$Load_{new}$] and the current authorized discharge load [$Load_{old}$] are equal for all pollutants.

Following the flow chart in Figure 2 from the above-referenced document, since the [$Load_{new}$] = [$Load_{old}$], and the [$WQBEL_{new}$] = [Existing Limit] for all pollutants, an increased water quality impact will not occur and the antidegradation review is terminated for this stream segment at this time.

6.7 Anti-Backsliding

Federal regulations require at 40 CFR Part 122.44(l)(1) that "when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit were based have materially and substantially changed since the time the Permit was issued and would constitute cause for permit modification or revocation and reissuance under 40 CFR Part 122.62)."

This permit renewal complies with anti-backsliding regulatory requirements. With the exception of the TSS limits, all effluent limitations, standards, and conditions in the Permit are either equal to or more stringent than those in the previous permit (see section 2).

With regards to the TSS limit, the limits are being changed to be more in line with Colorado Regulation Number 62 and be more protective of water quality standards overall. However, the removal of the daily maximum effluent limit does allow the possibility that in certain situations the new limits could be less stringent for short-term periods.

The previous statement of basis stated that the 45 mg/L was implemented as a daily maximum because the frequency of sampling was not sufficient to provide for averaging of multiple samples for 7-day and 30-day limits. However, a weekly sampling frequency does provide enough data to evaluate both weekly and monthly limits. Due to this technical mistake in the previous permit, an exception to the backsliding regulations is allowed per 40 CFR 122.44(l)(2)(i)(B)(2). Overall, the new TSS limits will be more protective of water quality standards by requiring a lower average monthly TSS limit.

7 MONITORING REQUIREMENTS

The following parameters shall be monitored during discharge from the dewatering operation (Table 6). If no discharge occurs during a monitoring period, "no discharge" shall be indicated on the DMR. Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, as required in 40 CFR Part 122.41(j).

Effluent monitoring samples shall be taken at each outfall with a discharge at the listed frequency. The effluent sampling location shall be after all treatment processes but prior to discharge to the receiving water.

Monitoring requirements have changed significantly from the previous permit to include additional VOCs, phenols, metals, and WET testing (Table 6). This increased monitoring will allow EPA to determine if there is reasonable potential for violations of Colorado water quality standards to occur. Note that effluent limits for the additional monitoring parameters are not included in the Permit (see section 6.5).

Table 6. Monitoring Requirements – Outfall 001 through 008

NOTE: This table was modified during public comment and the 401 certification process. It may not match the justifications and reasoning presented above. See Addendum for further clarification.

Effluent Characteristic	**Pollutant Type**	**Frequency**	**Sample Type a/**
Total Flow, million gallons per day (mgd)	-	Daily b/	Instantaneous
Oil and Grease, visual	conventional	Weekly c/	Visual
Oil and Grease, mg/L	conventional	Immediately if a visible sheen or floating oil is detected or observed in the discharge c/	Grab
pH, s.u.	conventional	Weekly d/	Grab
Total Suspended Solids, mg/L	conventional	Weekly e/	Grab
Benzene, µg/L	VOC	Monthly f/	Grab
BTEX, µg/L	VOC	Monthly f/	Grab
1,1-Dichloroethane (1,1-DCA), µg/L	VOC	Monthly f/	Grab
1,1-Dichloroethene (1,1-DCE), µg/L	VOC	Monthly f/	Grab
Tetrachloroethene (PCE), µg/L	VOC	Monthly f/	Grab

Effluent Characteristic	**Pollutant Type**	**Frequency**	**Sample Type a/**
1,2,4-Trichlorobenzene, µg/L	VOC	Monthly f/	Grab
1,1,1-Trichloroethane (1,1,1-TCA), µg/L	VOC	Monthly f/	Grab
Trichloroethene (TCE), µg/L	VOC	Monthly f/	Grab
Vinyl Chloride, µg/L	VOC	Monthly f/	Grab
Cadmium (Cd), potentially dissolved, µg/L g/	Metal	Monthly f/	Grab
Chromium (Cr), total recoverable, µg/L h/	Metal	Monthly f/	Grab
Copper (Cu), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Iron (Fe), total recoverable, µg/L	Metal	Monthly f/	Grab
Lead (Pb), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Manganese (Mn), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Mercury (Hg), total recoverable, µg/L	Metal	Monthly f/	Grab
Nickel (Ni), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Selenium (Se), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Silver (Ag), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Zinc (Zn), potentially dissolved, µg/L	Metal	Monthly f/	Grab
Total Phosphorus (TP), mg/L i/	Nutrients	Monthly f/	Grab
Whole Effluent Toxicity at 25° C, acute, LC_{50}	-	Once Per Construction Project j/	Grab

a/ See section 1 of the Permit for definition of terms.

b/ Flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained. The average flow rate for

the month and the daily maximum flow (maximum volume discharged during a 24-hour period) shall be reported (in million gallons per day).

c/ If a visible sheen or floating oil is detected or observed in the discharge, a grab sample shall be taken immediately, analyzed, and recorded in accordance with the requirements of 40 C.F.R. Part 136.

d/ The maximum and minimum pH shall be reported each quarter.

e/ The highest weekly value and average monthly value shall be reported for each month in the quarterly reporting period.

f/ For VOCs, metals, and phosphorus, the average monthly value and maximum daily value shall be reported for each month in the quarterly reporting period.

g/ The term "potentially dissolved" metals is defined in section 1 of the Permit.

h/ Total chromium monitoring and reporting will be allowed to show compliance with the total trivalent chromium effluent limit. Specific monitoring of total trivalent chromium is not required in the Permit.

i/ This monitoring requirement has been added as a 401 certification condition required by the Colorado Department of Public Health & Environment.

j/ One acute WET test shall be performed at least once for each construction project discharge. It shall be performed on two species; *Ceriodaphnia dubia*, EPA 2000.0, as a 48-hr, static-renewal definitive test with renewals at each 24-hr interval, and *Pimephales promelas*, EPA 2002.0, as a 96-hour static-renewal definitive test with renewals at each 24-hr interval. Both test shall utilize the standard dilution series of 100%, 75%, 50%, 25%, 12.5% and a 0 control, with hard synthetic laboratory water for dilutions with test temperature set at 25° Celsius. See section 5.1 for more information on WET testing.

8 REPORTING REQUIREMENTS

On December 21, 2015, the NPDES Electronic Reporting Rule (40 CFR Part 127) went into effect. This rule includes two phases. Phase 1 included the requirement that by no later than December 21, 2016, entities that are required to submit DMRs must do so electronically unless a waiver from electronic reporting is granted to the entity. Phase 2 includes the requirement that by no later than December 21, 2020, or as otherwise specified in 40 CFR Part 127, other specified reporting must be done electronically.

With the effective date of the Permit, the Permittee must electronically report DMRs on a quarterly frequency using NetDMR. Electronic submissions by permittees must be submitted to EPA Region 8 no later than the 28th of the month following the completed reporting period (Table 7). The Permittee must sign and certify all electronic submissions in accordance with the signatory requirements of the Permit. NetDMR is accessed from the internet at https://netdmr.zendesk.com/home.

The reports that are to be submitted electronically after December 21, 2020, or as otherwise specified in 40 CFR Part 127, are to be submitted using the NPDES Electronic Reporting Tool (NeT). The instructions on how to use NeT are not yet available. In the future, the Permittee will receive instructions on how to use NeT. Until then, the Permittee shall continue to submit these reports in paper format by mailing them to the specified addresses.

Table 7. Due Dates for Quarterly DMR Submittals

Compliance Monitoring Period	Due Date
January – March	April 28
April – June	July 28
July – September	October 28
October – December	January 28

9 ENDANGERED SPECIES CONSIDERATIONS

The Endangered Species Act (ESA) of 1973 requires all Federal Agencies to ensure, in consultation with the U.S. Fish and Wildlife Service (FWS), that any Federal action carried out by the Agency is not likely to jeopardize the continued existence of any endangered species or threatened species (together, "listed" species), or result in the adverse modification or destruction of habitat of such species that is designated by the FWS as critical ("critical habitat"). See 16 U.S.C. § 1536(a)(2), 50 CFR Part 402. When a Federal agency's action "may affect" a protected species, that agency is required to consult with the FWS, depending upon the endangered species, threatened species, or designated critical habitat that may be affected by the action (50 CFR Part 402.14(a)).

The U. S. Fish and Wildlife Information for Planning and Conservation (IPaC) website program was accessed on July 14, 2020 to determine federally-listed Endangered, Threatened, Proposed and Candidate Species that may be present in the portion of Jefferson County, Colorado near the DFC (Table 8).

Table 8. Potentially Affected Species at this Location

Species	Scientific Name	Status
Canada lynx	*Lynx canadensis*	Threatened
Least tern	*Sterna antillarum*	Endangered
Mexican spotted owl	*Strix occidentalis lucida*	Threatened
Piping plover	*Charadrius melodus*	Threatened
Whooping Crane	*Grus americana*	Endangered
Pallid sturgeon	*Scaphirhynchus albus*	Endangered
Ute ladies'-tresses	*Spiranthes diluvialis*	Threatened
Western Prairie Fringed Orchid	*Platanthera praeclara*	Threatened

Additionally, IPaC determined there are no critical habitats at this location.

9.1 Biological Evaluations and Conclusions

Biological evaluations of the potential effects of the proposed action on the eight listed species and their critical habitat are provided below. These biological evaluations are based on information obtained from the IPaC site and knowledge regarding the proposed action.

The proposed action is reissuance of this NPDES permit. This is a continuation of existing operating conditions; no significant changes to habitat or discharge volumes or quality are planned or expected due to the reissuance of this permit. Since this is a dewatering permit, there is no consumptive use, and no water depletions will result from this Permit. Permit effluent limitations are protective of receiving water quality.

Canada lynx, *lynx canadensis* – This species is currently listed as threatened. This location is outside the critical habitat for this species. Canada lynx inhabit alpine or boreal forests and are unlikely to be found in the urban setting of the DFC. Regardless, the Permit does not authorize changes to habitat that supports this species, nor are discharges from dewatering operations anticipated to affect this species. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Least tern, *Sterna antillarum* – This species is currently listed as endangered. No critical habitat has been designated for this species, and IPaC notes that this species only needs to be considered if water related activities/use in the South Platte River Basin may affect listed species in Nebraska. Continuation of this intermittent dewatering activity in the Denver metropolitan area will not affect populations in Nebraska. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Mexican spotted owl, *Strix occidentalis lucida* – This species is currently listed as threatened. This location is outside the critical habitat for this species. Mexican spotted owls typically inhabit mature, old growth mixed forests and rocky canyonlands with minimal human disturbance and are unlikely to be found in the urban setting of the DFC. Regardless, the Permit does not authorize changes to habitat that supports this species, nor are discharges from dewatering operations anticipated to affect it. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Piping plover, *Charadrius melodus* – This species is currently listed as threatened. This location is outside the critical habitat for this species, and IPaC notes that this species only needs to be considered if water related activities/use in the South Platte River Basin may affect listed species in Nebraska. Continuation of this intermittent dewatering activity in the Denver metropolitan area will not affect populations in Nebraska. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Whooping crane, *Grus americana* – This species is currently listed as endangered. This location is outside the critical habitat for this species, and IPaC notes that this species only needs to be considered if water related activities/use in the South Platte River Basin may affect listed species in Nebraska. Continuation of this intermittent dewatering activity in the Denver metropolitan area will not affect populations in Nebraska. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Pallid sturgeon, *Scaphirhynchus albus* – This species is currently listed as endangered. No critical habitat has been designated for this species, and IPaC notes that this species only needs to be considered if water related activities/use in the South Platte River Basin may affect listed species in Nebraska. Continuation of this intermittent dewatering activity in the Denver metropolitan area will not affect populations in Nebraska. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Ute ladies'-tresses orchid, *Spiranthes diluvialis* – This species is currently listed as threatened. No critical habitat has been designated for this species. The Ute ladies'-tresses orchid typically occurs in riparian, wetland and seepy areas associated with old landscape features within historical floodplains of major rivers. They are also found in wetland and seepy areas near freshwater lakes or springs. Ute ladies'-tresses orchids are unlikely to be found in the disturbed urban setting of the DFC. Regardless, the Permit does not authorize changes to habitat that supports this species, nor are discharges from dewatering operations anticipated to affect it. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Western prairie fringed orchid, *Platanthera praeclara* – This species is currently listed as threatened. No critical habitat has been designated for this species, and IPaC notes that this species only needs to be considered if water related activities/use in the South Platte River Basin may affect listed species in Nebraska. Continuation of this intermittent dewatering activity in the Denver metropolitan area will not affect populations in Nebraska. Based on this information, EPA has determined that the reissuance of the Permit will have **no effect** on this species.

Per an informal consultation with the FWS on July 16, 2020, and the *Endangered Species Consultation Handbook* and the *Memorandum of Agreement Between EPA, FWS, and NMFS Regarding Enhanced Coordination Under the Clean Water Act and Endangered Species Act*, the "no effect" determinations above do not require further consultation with the FWS. During public notice of the Permit, FWS will be notified as an interested party.

10 NATIONAL HISTORIC PRESERVATION ACT REQUIREMENTS

Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470(f) requires that federal agencies consider the effects of federal undertakings on historic properties. The U.S. National Park Service National Register of Historic Places database was used to determine and evaluate resources of concern in or near the DFC.

The U.S. Government purchased what is the DFC property in the early 1940s, and developed it into the Denver Ordnance Plant. Currently, most of the buildings constructed on the DFC have been renovated, thus making them potentially ineligible for National Historic designation. Only two buildings have currently maintained enough structural and physical integrity to meet the criteria for consideration for National Register designation: the original Office of Civil Defense Emergency Operations Center adjacent to Building 50, and Building 710. Both of these buildings are underground. Because this Permit is associated with discharges into McIntyre Gulch, EPA's preliminary determination is that this permit renewal will not impact any historic properties.

During public notice of the Permit, Colorado's State Historic Preservation Office (SHPO) was notified as an interested party to ensure that historic properties are not negatively affected by the conditions of the Permit.

11 MISCELLANEOUS

The effective date and expiration date of the Permit will be determined upon issuance for a period not to exceed 5 years.

Permit drafted by Erik Makus, U.S. EPA, (406) 457-5017, July 2020.

12 ADDENDUM:

12.1 AGENCY CONSULTATIONS

FWS: During public notice of the Permit, FWS did not provide further comment on EPA's preliminary determination that the reissuance of the Permit will have no effect on any endangered or threatened species.

Colorado SHPO: During public comment, the Colorado SHPO did not comment on EPA's preliminary determination that the Permit reissuance will not impact any historic properties.

CDPHE: On December 6, 2020, EPA sent a CWA section 401 certification request to the state of Colorado. Colorado certified with the following section 401 certification requirements. Any review or appeal of these limitations or conditions must be made through state of Colorado procedures pursuant to 40 CFR § 124.55(e).

Colorado added a table of 401 certification conditions (Table 1of the Addendum) and also clarified that all dissolved metals should be analyzed and reported as "potentially dissolved" to comply with their WQS via the following statement in their 401 conditional certification:

"As provided in Regulation 31.22.B(1) and 31.22.C, the division requires the use of the potentially dissolved method for effluent monitoring to determine compliance with metals limitations based on dissolved metals standards, unless it is demonstrated that dissolved analysis is statistically comparable for the discharge in question. Per Regulation 31.5(32): *"potentially dissolved metals" means that portion of a constituent measured from the filtrate of a water and suspended sediment sample that was first treated with nitric acid to a pH of less than 2.0 and let stand for 8 to 96 hours prior to sample filtration using a 0.4 or 0.45 µm membrane filter. Note the "Potentially Dissolved" method cannot be used where nitric acid will interfere with the analytical procedure used for the constituent measured.*"

Table 1 of the Addendum: Additional Permit Limitations and Monitoring Requirements Applicable to Outfalls 001 through 008:

Parameter	Units	30-Day Average Discharge Limitation Maximum Conc.	7-Day Average Discharge Limitation Maximum Conc.	Daily Maximum Discharge Limitation Maximum Conc.	Monitoring Frequency	Sample Type
Cadmium, (Potentially Dissolved)	µg/l	1.1	NA	4.7	TBD[b]	Grab
Chromium, Trivalent, [a] (Total Recoverable)	µg/l	100	NA	NA	TBD[b]	Grab
Copper, (Potentially Dissolved)	µg/l	15	NA	23	TBD[b]	Grab
Iron, (Total Recoverable)	µg/l	1,000	NA	NA	TBD[b]	Grab
Lead, (Potentially Dissolved)	µg/l	4.7	NA	122	TBD[b]	Grab
Manganese, (Potentially Dissolved)	µg/l	2,006	NA	3,631	TBD[b]	Grab
Mercury, (Total Recoverable)	µg/l	0.01	NA	NA	TBD[b]	Grab
Selenium, (Potentially Dissolved)	µg/l	4.6	NA	18.4	TBD[b]	Grab
Silver, (Potentially Dissolved)	µg/l	0.88	NA	5.6	TBD[b]	Grab
Zinc, (Potentially Dissolved)	µg/l	207	NA	273	TBD[b]	Grab
Phosphorus, (Total)	mg/l	Report	NA	Report	TBD[b]	Grab

[a] Analytical results for total chromium may be reported and used to show compliance with the total trivalent chromium effluent limitation.
[b] TBD = Weekly or as established by EPA

EPA's Implementation of CDPHE's 401 Certification Conditions

EPA has determined that a monthly monitoring frequency shall be sufficient for all parameters listed in Table 1 of the Addendum (see response to comments below). The certification conditions in the table above have been added to Tables 2 and 3 of the Permit, and a definition of 'potentially

dissolved' has been added to section 1 of the Permit. The draft statement of basis has not been changed to reflect all additional requirements or changes listed in the Addendum.

12.2 PUBLIC NOTICE AND RESPONSE TO COMMENTS

The Permit and statement of basis were public noticed on the EPA website on December 3, 2020. EPA received comments from two entities. The comments received and the responses are provided below.

- Comments #1 through #2: Barb Johnson, Environmental Review, Inc.
- Comments #3 through #12: John Kleinschmidt, General Services Administration (GSA) [Permittee]

Comment #1 – Barb Johnson, Environmental Review, Inc.:

According to Section 5.1, item 2 of the Permit, the Permittee is: "to promptly take all reasonable measures necessary to immediately reduce toxicity" if acute toxicity occurs in a laboratory test.

The test results appear to lag behind the discharge of treated water. By the time the Permittee is made aware of an exceedance of acute toxicity, water has been discharged. In the event of a toxicity exceedance, what mitigation efforts can be done to correct what has already been discharged? Also, what "reasonable measures" are foreseen that will reduce toxicity? The term "reasonable" is subjective.

EPA's Response to Comment #1:

"According to Section 5.1, item 2 of the Permit, the Permittee is: "to promptly take all reasonable measures necessary to immediately reduce toxicity" if acute toxicity occurs in a laboratory test. The test results appear to lag behind the discharge of treated water. By the time the Permittee is made aware of an exceedance of acute toxicity, water has been discharged."

With this permit renewal, EPA has included whole effluent toxicity (WET) monitoring requirements, which were not included in the Permittee's previous permit, to provide an additional level of water quality protection. The commenter is correct in that there is a potential lag between when the results of the WET tests are received and the ongoing discharge status. This is the case for data received for monitoring and compliance with most NPDES permits around the nation, whether they contain effluent limits or not, because "real-time" data is not available for many parameters that require lab analysis in accordance with EPA-approved methods in 40 CFR Part 136. Currently, there is no EPA-approved 40 CFR Part 136 "real-time" testing procedure for WET testing and therefore laboratory analysis is required.

"In the event of a toxicity exceedance, what mitigation efforts can be done to correct what has already been discharged?"

The WET monitoring requirements specified in the Permit serve as an indicator of toxicity. Should a positive toxicity result occur, the Permit is limited in its scope of coverage to the limits and requirements set at the point of discharge. Therefore, any subsequent measures taken to reduce toxicity would take place at the regulated point of discharge.

In the case of this particular permit, there are several other factors that provide an added level of protection for toxicity concerns in McIntyre Gulch. The statement of basis provided a thorough review of Colorado's water quality standards, and the Permit has implemented monitoring requirements and effluent limitations for identified pollutants of concern. For example, the final permit now requires monitoring (and additional effluent limits via the 401 certification conditions) for metals, which are one of the most common pollutants that can be toxic to aquatic life. Overall, EPA believes the Permit is protective of any toxicity concerns in McIntyre Gulch.

"Also, what "reasonable measures" are foreseen that will reduce toxicity? The term "reasonable" is subjective."

The term "reasonable" is well-established – although not defined – in 40 CFR ('reasonable measures', 'reasonable estimates', 'reasonable opportunity', 'reasonable judgment', a 'reasonable amount of time', etc.). This gives the permitting authority some flexibility in determining whether a categorical or case-by-case approach is more appropriate for a particular situation. In Region 8, when permittees have a WET failure, EPA has applied reasonable measures such as requiring a permittee to reduce or stop discharging, working with permittees to install additional treatment systems, and/or requiring Toxicity Identification Evaluation (TIE)/Toxicity Reduction Evaluation (TRE) studies to identify and eliminate causes of toxicity. However, the measure(s) taken can vary significantly based on the individual circumstances (e.g., the specific facility, receiving stream, etc.), so allowing for some flexibility in the response ensures that EPA can determine the most productive course of action for a particular situation.

No changes were made to the Permit as a result of this comment.

Comment #2 – Barb Johnson, Environmental Review, Inc.:

Section 2 of the SOB indicates that a flow limit has been added to this Permit.

Considering this is a new requirement and that the treatment system is a mobile unit, will multiple discharge pipes be needed (with unique flow meters) in order to adequately monitor the flows from different construction sites with varying flows? Furthermore, is there an accuracy requirement for instrumentation (such as a flow meter)?

EPA's Response to Comment #2:

The commenter is correct – a 30-day average flow limit of 0.13 million gallons per day (MGD) has been added to the Permit. However, while the effluent limit for flow is a new requirement, flow monitoring and reporting has been required since the permit was first issued in 2014. The only change in this renewal is that the Permittee now has a flow limit. The Permittee has successfully monitored flow using a calibrated flow meter in the previous permit and is required to continue this effort in this renewal.

Per footnote b of Table 3 of the Permit (page 10), "flow measurements of effluent volume shall be made in such a manner that the Permittee can affirmatively demonstrate that representative values are being obtained." This statement requires the Permittee to accurately measure their overall discharge, regardless of how many discharge pipes they use. Thus, if the Permittee has multiple discharges, they are required to accurately measure each of those multiple discharges. The total of their discharge must remain at or below 0.13 MGD, measured as a 30-day average flow, to remain in compliance with the Permit.

EPA does not have an accuracy requirement for flow measurements. If asked by EPA, the Permittee must be able to demonstrate that they are reasonably and accurately measuring the flow volume in a representative manner in accordance with the above Permit requirement. During an inspection, the Permittee's flow measurement equipment may be inspected and a calibration check performed.

No changes were made to the Permit as a result of this comment.

Comment #3 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

GSA requests the ability to discuss and present its positions with CDPHE and EPA.

EPA's Response to Comment #3:

EPA is willing to discuss data or comments presented during the public comment period. EPA and GSA participated in a phone call to discuss GSA's public comments on February 8th, 2021.

No changes were made to the Permit as a result of this comment.

Comment #4 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

The original intent of this permit (CO-0034878: 1/1/15 to present) was to streamline the construction dewatering permitting process in portions of the DFC that have "known potential impacts" to groundwater. Through the CDPHE COs for the DFC, a substantial amount of groundwater analyses has been performed. This data allowed the monitoring requirements and effluent limitations to be targeted to the contaminants in the areas of "known potential impacts" for the original permit.

This draft for the re-issuance of this permit appears to shift its focus from just the known contaminants within the areas of "known potential impacts" to all potential contaminants (VOCs, SVOCs and Metals) detected in groundwater underlying the DFC, whether from background, from known contamination, or from any potential listed contaminate not related to known sources as determine from previous RCRA investigations on the DFC. As such, the monitoring requirements in this new permit have increased substantially.

Therefore, it is unclear if there is any benefit to continuing this dewatering permit specific to the "known potential impacts." It may be more cost effective to return to having the construction contractors submit for a specific dewatering permit via the Construction General Permit (CGP) and the CDPHE Dewatering General Permit Program for the project they are working on.

Another option would be to collect a sample of the groundwater in the area to be dewatered (baseline sample), analyze it for those constituents in the list of Monitoring Requirements (Table 3 of the permit), and then monitor the dewatering discharge for only those constituents detected in the baseline sample.

EPA and CDPHE, please provide input on the merit of continuing with this dewatering permit versus other permitting options. Discussion with EPA and CDPHE on this subject should be continued before final issuance of this permit.

EPA's Response to Comment #4:

EPA issues NPDES discharge permits to point sources that discharge pollutants to waters of the United States. This process helps ensure compliance with the federal Clean Water Act. As part of the permitting process, if a pollutant is discharged at or near concentrations that may cause an exceedance of relevant water quality standards in the receiving water, monitoring and/or effluent limits may be required in the Permit. The receiving water in this case is McIntyre Gulch. As discussed in the statement of basis, the groundwater at the DFC contains multiple pollutants in concentrations exceeding Colorado's surface water quality standards for McIntyre Gulch. Therefore, EPA must consider these as potential pollutants of concern, and determine whether monitoring and/or effluent limits may be required.

Regarding permit coverage options, the state of Colorado is not the permitting authority at the DFC, so this facility is not eligible for coverage under the CDPHE General Dewatering Permit Program. Additionally, this particular discharge is not eligible for coverage under EPA's Construction General Permit (CGP) for multiple reasons. The CGP only covers discharges that are not already covered by a different NPDES permit (section 1.1.4(a)), so as long as this permit is providing coverage, GSA could not use the CGP to separately discharge from this operation. More importantly, the 2017 CGP does not allow the dewatering of contaminated groundwater. Specifically, the CGP authorizes *uncontaminated…discharges of ground water* in section 1.2.2(j). The groundwater from an area of "known potential impacts" at the DFC – at which there are Administrative Orders of Consent issued to mitigate groundwater pollution – is clearly not uncontaminated. Therefore, the CGP does not cover this and so if this facility were to discharge under the CGP, it would be discharging without a valid permit and would be in violation of the Clean Water Act. Furthermore, at this time EPA has not issued a general permit for dewatering in remediation areas, so an individual permit is the only option for this facility to obtain a permitted surface discharge to McIntyre Gulch. Having said that, the CGP could potentially be used in areas of 'no known contamination' at the DFC. This is discussed in section 3.1 of the statement of basis for this Permit.

Regarding GSA's suggestion to collect a baseline sample prior to each discharge operation, this is similar to what would be required under CDPHE's General Dewatering Permits (COG317000 and COG318000). During earlier discussions, EPA was under the impression that this was not the preferred option for GSA, as it would require substantial efforts up front to characterize that particular groundwater plume. The draft Permit assumes that the groundwater at the DFC has been adequately characterized (a belief which it appears GSA shares, based on their public comments). Thus, the Permit is constructed to assume that the groundwater is adequately characterized, and the only required sampling is for those pollutants of concern known to be in the groundwater. This assumption also allows the monitoring frequency to be less frequent than at a site where the groundwater was not adequately characterized.

The baseline sampling option can be discussed or requested at the next issuance of this permit if GSA believes this is a more desirable option for permit coverage. However, the baseline source water (influent) monitoring would include a much broader swath of pollutants that would, at a minimum, resemble the list of pollutants in the 1996 and 1997 Administrative Orders on Consent. Based on any detections, this alternative permit could have more or less effluent sampling requirements than the existing permit. Additionally, an uncharacterized plume may have higher effluent sampling frequency requirements than a characterized plum. Overall, it seems unlikely that there would be a substantial savings in cost or time associated with this alternate methodology. Finally, this option may require a

substantial amount of time in between collecting a baseline sample and the beginning of discharge, so that EPA could receive the sample results, analyze them, and develop permit limits and monitoring requirements based on that specific location.

No changes were made to the Permit as a result of this comment.

Comment #5 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

This permit pertains to the areas of the DFC that have "known potential impacts" to groundwater. Therefore, all dewatering fluids from these areas are required to be treated (to at least the Table 2 – Effluent Limitations) before discharge. This treatment is usually performed by Granular Activated Carbon (GAC) treatment systems in addition to other methods, as necessary. In the past, GAC systems have been effective at removing the contaminants in the areas of "known potential impacts" listed in the original permits monitoring requirements.

Sampling for the monitoring requirements will take place on the effluent side of the selected treatment system and non-detect results obtained prior to discharge. Therefore, the samples collected and analyzed for this new permit's Table 3–Monitoring Requirements will be collected from clean, treated water and as such will most likely show non-detect results for the listed parameters.

The effectiveness and practicality of sampling treated, clean water, for the much-expanded new permit monitoring requirements, on a weekly basis, should be discussed.

EPA's Response to Comment #5:

Effluent monitoring is required to verify that permit limits are being met and/or determine if there is reasonable potential for the discharge to cause or contribute to an exceedance of applicable water quality standards. In more generic terms, one clear goal of effluent monitoring is exactly what the Permittee stated above - to ensure that clean water is discharged to McIntyre Gulch. Stating that the samples will "most likely" show non-detect results for the listed parameters is not protective of McIntyre Gulch. Demonstrating that pollutants in the discharged water are at or below the relevant effluent limits or water quality standards – *via effluent sampling* – is protective of McIntyre Gulch. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for a pollutant to cause or contribute to an exceedance of Colorado's water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

Regarding the weekly monitoring frequency, EPA acknowledges the economic and financial burden of weekly sampling for an expanded monitoring suite (see also comment/response #7). EPA believes that reducing monitoring to monthly for volatile organic carbons (VOCs) and metals will still be protective of Colorado's WQS. This monthly monitoring will reduce the economic burden of those particular sampling requirements by over 75%, while still providing an adequate number of samples for analysis.

The monitoring frequency for all VOCs and metals has been reduced from weekly to monthly in Table 3 of the Permit.

Comment #6 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Through GSA's RCRA Environmental Program, GSA has established a background dataset for metals (total and dissolved) and select inorganics and other parameters. Based on a comparison of the natural site conditions at the DFC, (e.g., background) to the standards, GSA believes that the standards should be modified to the background values approved by CDPHE for the DFC, specifically, for Cadmium-D (2.0 ug/L), Iron-T (130,000 ug/L), Mercury-T (2.0 ug/L), Phosphorus-T (3.08 mg/L), Selenium-D (23 ug/L), Silver-D (2.5 ug/L) and Total Suspended Solids (3,100,00 ug/L). (See Table 1 Background Comparison).

EPA's Response to Comment #6:

EPA bears the responsibility to implement applicable water quality standards as they are at the time of permit issuance. The Permit allows discharges to McIntyre Gulch and therefore EPA must consider water quality standards on McIntyre Gulch promulgated by CDPHE. If CDPHE modifies water quality standards for McIntyre Gulch at a later date, the Permit could be re-opened per section 8.15.1. Additionally, permit conditions will be re-assessed in the next permit issuance cycle to ensure that they continue to comply with all relevant water quality standards for McIntyre Gulch.

No changes were made to the Permit as a result of this comment.

Comment #7 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

GSA understands frequent sampling early in the project(s). However, for lengthy projects, weekly sampling could become a financial burden to those projects without adding much benefit. GSA proposes a step down in sampling frequency as the project continues, assuming no detects and/or no exceedance above the proposed effluent standards. (See Page 11- step down in frequency after 10 weeks – after written request). GSA proposes that after eight weeks of monitoring, if the results have shown no effluent exceedances, a reduction in monitoring frequency to monthly is allowed without written approval. Adding this step down in monitoring frequency to the permit would prevent the time delay of requesting the reduction in writing.

GSA believes for any lengthy project, a decreased frequency such as to monthly or quarterly sampling will be sufficient, especially after the historical documentation through the CO program and the lack new sources of groundwater contamination.

EPA's Response to Comment #7:

EPA agrees that weekly sampling could be considered a financial burden on the Permittee, considering that the sampling parameter list has increased substantially. After review of the data provided, EPA believes that adjusting the sampling frequency for VOCs and metals to monthly will provide adequate data to characterize the effluent and adequate protection for McIntyre Gulch. Note that flow, pH, oil & grease visual observation, and TSS are not included in this reduction – these will continue to be required at the frequency stated in Table 3 of the Permit. This monthly monitoring will reduce the economic burden of those particular sampling requirements by over 75%, while still providing an adequate number of samples for analysis and ensuring protection of Colorado's water quality standards. However, there will be no further reduction in frequency beyond monthly monitoring for these parameters. A monthly sampling frequency is the minimum frequency to adequately characterize the variability in the effluent.

Monitoring requirements have been changed from weekly to monthly for all VOCs and metals in Table 3 of the Permit. The footnote regarding a reduction in monitoring frequency from weekly to monthly has been removed from Table 3 in the Permit.

Comment #8 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Based on the review of the datasets as discussed in the Background Section, specifically those data which have a level of validation per the QAPP of 3 or 4 (SMDL > 0), there a number of parameters that have either not been detected, or if detected, were below the Proposed/Potential Effluent Standards (PPEffStd) in the 30+ years of groundwater monitoring within and around the DFC and therefore should be removed from the monitoring list.

EPA's General Response to Comment #8:

Individual responses are listed under each sub-section. However, *generally* EPA realizes that GSA has a large and complex monitoring dataset from the DFC, including potential outliers, samples analyzed using different test methods – with different reporting limits and detection limits, multiple locations, some of which are outside or just outside the area of "known potential impacts," etc. Such large and complex datasets can lend themselves to multiple valid interpretations. EPA also realizes this is not a 'standard' reasonable potential analysis in that most of the dataset is source water data – not effluent data. Having said that, the best way to rectify all of these issues is to obtain a reasonable amount of effluent monitoring data, so that these questions can be unequivocally answered in future permit renewals.

If a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for a pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

8.1 The Phenol Group: 2-Chlorophenol, 2-Nitorphenol, 4-Chloro-3-methylphenol, 4-Nitrophenol, Pentachlorophenol and Phenol. Of the phenols, 2-Chlorophenol, 4-Chloro-3-methylphenol, and 4-Nitrophenol, and Pentachlorophenol have a single detected result which exceeds the PPEffStd, but the data are not to be used for decision making since the validation code of 1 or 2 and SMDL <= 0. In addition, MW-4, the well with the exceedance for these parameters, was sampled the next day and all six phenols listed in Table 3 of the permit were ND for these parameters, confirming the results received the day before are potentially suspect. For 2-Nitrophenol and 4- Nitrophenol, all the results are ND. For Pentachlorophenol and Phenol there are over 10 results of each compound but none of these additional results exceed the PPEffStd. GSA presents the data for its position in the following tables, time series graphs and figures: Figure 1 and Figure 1A- Phenol Locations, Table 2- MW-4 July 1986 Results, TS Graph #1-A- MW-4 Phenol July 1986 Results, TS Graph #1-B- MW-4 Phenol All Results, TS Graph #1-C- PCP Results, Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4), and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4).

EPA's Response to Comment #8.1:

Monitoring requirements for the six phenols were included in the draft permit because phenols were considered a pollutant of concern based on the 1996 Administrative Order on Consent, yet phenol monitoring data was not provided with the application nor upon request of data from the facility.

However, during the public comment period the permittee provided a large sampling dataset which included phenols. "GSA Table 3", provided with GSA's public comment, contains summary data for several thousand phenol sampling events. Sampling events for four of the six phenols (2-nitrophenol, 4-nitrophenol, 2-chlorophenol, and phenol) show over 1,000 samples for each of these pollutants, with either no detections, or no detections within an order of magnitude of any applicable water quality standard (Table RTC-1). Based on the data submitted by the Permittee, EPA has determined that these four phenols have no reasonable potential to cause or contribute to an exceedance of applicable water quality standards, and therefore monitoring requirements for these four phenols will be removed from the Permit.

4-chloro-3-methylphenol and pentachlorophenol both had a single sample that exceeded applicable water quality standards. The two exceedances were from the same sampling event, taken in May 1986 from monitoring well MW-4. The Permittee sampled the same well the next day and obtained non-detect values for both pollutants. The Permittee had flagged this data as a potential outlier, and EPA agrees that the circumstances indicate it may be an outlier and could reasonably be removed from the dataset. This leaves over 1,000 samples for 4-chloro-3-methylphenol with no detections, while the highest detected sample for pentachlorophenol was about 12% of the standard (Table RTC-1). Based on the data and comment submitted by the Permittee, EPA has determined that these two phenols have no reasonable potential to cause or contribute to an exceedance of applicable water quality standards, and therefore monitoring requirements for these two phenols will be removed from the Permit.

Table RTC-1. Summary of phenol data from GSA's Table 3

Pollutant	Method	Total Samples	Total Detects	Ratio of Highest Detection/WQS
2-nitrophenol	various	1,006	0	0
4-nitrophenol	various	1,004	1	0
2-chlorophenol	various	1,003	1	0.03
phenol	various	1,002	23	0.02
pentachlorophenol	various	1,036*	12*	0.12*
4-chloro-3-methylphenol	various	1,001*	0*	0*

*These summaries exclude a single outlier that was removed based on the discussion above.

Monitoring requirements for the six phenols have been removed from Table 3 in the Permit.

The Metals: Cadmium (D), Chromium Trivalent (T), Copper (D), Iron (T), Manganese (D), Mercury (T), Nickel (D), Selenium (D), Silver (D) and Zinc (D).

8.2 Cadmium (D): For a review of results of the three wells, GSA-31, BBT9504 and TW08-01 and Wireline Tool Testing Silo, USGSSIL03, which exceed the effluent standard for Cadmium (D) of 1.1

ug/L, please initially review the included time series plots, which compares dissolved to total results for these areas, as well as the one well, GSA-248 with results that equal the standard and the two additional wells, GSA-182 and GSA-183 which are ND with a raised SMDL above. (See TS Graph #2-A Cadmium, Figure 2, Cadmium Locations).

For BBT9504, located just south of McIntyre Gulch and east of Routt St, the one result for Cadmium (D) of 8.8 ug/L from May 2010 is anomalous to all the other data collected from the 28 sample events, which are all ND or below the standard. In addition, the corresponding analysis for Cadmium (T) for this sample event is 0.31 ug/L. Based on this, it is GSA's opinion that the samples may have been mislabeled. Though this was not considered an issue at the time of the sample event because the result was an isolated result and no action was required by CDPHE Hazardous Material Division. Also, activities, such as the remediation of contaminated soils/debris in the abandoned McIntyre Gulch channel, the placement of waste removed from other areas of the SW Landfill for permanent placement under a Landfill cap, and the realignment of McIntyre Gulch as part of the utility infrastructure project in the areas near and upgradient of the well were disruptive to groundwater around the time of this sample and may be the cause of the anomalous result.

For GSA-31, located just east of Cell #3 of Interim Measure #1, outside the fence line and within the easement of Kipling Ave, the detected value of Cadmium (D) was 1.2 ug/L. The other results are ND or detected at a concentration approximately an order of magnitude lower than the standard of 1.1 ug/L. The 3rd location, USGSSIL03, though still Federal Property is located just south of North Ave and was removed from the DFC for use by a 3rd party around 2008-2009 The Silos have had chemicals applied during their operation. In addition, the one result of Cadmium (D) was 1.3 ug/L compared to the Cadmium (T) result of 1.6 ug/L.

Though this location was sampled twice, the other Cd (D) results were ND with an RL of 1 ug/L and a SMDL of 0.04 ug/L, whereas the Cd (T) was 0.04 ug/L. Both these location, GSA-31 and USGSSIL03, are only slightly above the proposed effluent standard, but both locations are outside the permit limits. The other result with an exceedance is TW08-01; though above the standard, the data has SMDL<=0 and therefore not for decisional use.

Based on this evaluation, the result of 8.8 ug/L from the only sample location, BBT9504, within the permit limits appears to GSA to be a statistical outlier; the number of samples results for BBT9504 is 28, with only one being above the standard and most likely caused by soil activities. Therefore, GSA requests that Cd-D be removed from the parameter list. GSA presents the data for its position in the following tables, time series graphs and figures: Figure 2- Cadmium Locations, Table 5- Cadmium Results, TS Graph #2A- Cadmium, Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4), and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4).

EPA's Response to Comment #8.2:

EPA acknowledges the high value of 8.8 µg/L may be a mislabeled "total cadmium" analysis and it is reasonable to conclude it is an outlier and could be removed from the dataset. EPA also acknowledges that some of these wells may be outside or just outside the area of "known potential impacts."

Regardless, the dissolved cadmium data provided show several exceedances of the cadmium water quality standard, as well as other values which are at or just below the standard. EPA determines

monitoring requirements (in part) by predicting a "maximum potential" effluent concentration from the data set using statistical procedures based on an assumed lognormal distribution. These procedures (outlined in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control*, EPA 1991) use the maximum observed pollutant concentration (after removing any "bad" data), the number of available effluent data points for the measured concentration of the pollutant and the coefficient of variation of the data set – which is a measure of the variability of data around the average – to predict the "maximum potential" effluent concentration. Even when removing the highest observed value, it does not change the fact that our analysis suggests there may be reasonable potential for cadmium to cause or contribute to an exceedance of the applicable water quality standard.

Cadmium effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

No changes were made to the Permit as a result of this comment.

8.3 Chromium III (T): GSA, as part of the RCRA Consent Order with CDPHE Hazardous Materials Division, has not been required to analyze soil or groundwater for Trivalent Chromium. GSA has had no known historic activity which either used or created different ions of Chromium. Though a high number of samples of groundwater analyzed for Total Chromium have exceed the proposed effluent standard of 100 ug/L for Trivalent Chromium (T), some by significant amounts, GSA requests a delay of having Trivalent Chromium as a requirement of the permit until further investigation can occur. GSA requests to be able to sample a select group of wells for Cr (T), Cr VI (T) and Cr III (T), to be decided by CDPHE, EPA and GSA. Upon result of the study, should all the results for Cr III (T) be less than the standard of 100 ug/L, discussion on the application of this effluent standard and monitoring of Cr III (T) would be warranted. See Table 3Review DFC Database (Validation Codes 1 thru 4), and Table 4: GW Statistical Review DFC Database (Validation Codes 3, thru 4/SMDL >0.

EPA's Response to Comment #8.3:

Chromium occurs in the environment predominantly in one of two valence states: trivalent chromium (Cr III), which occurs both naturally and is produced by industrial processes, and hexavalent chromium (Cr VI), which is most commonly produced by industrial processes. Colorado's water quality standards for McIntyre Gulch include criteria for total trivalent chromium, dissolved trivalent chromium, and dissolved hexavalent chromium. In the draft permit and statement of basis, EPA used the term chromium in reference to CDPHE's trivalent chromium standard. When CDPHE added a conditional certification requiring a trivalent chromium effluent limitation, this discrepancy became apparent and needs to be further addressed. As stated in the comment above, GSA has not collected trivalent chromium monitoring data at this time.

The data provided by GSA in 'GSA Table 3' show that the total chromium samples regularly exceed the total trivalent chromium water quality standard. Without knowing the exact valence state of the samples, this means that either:

1. The total trivalent chromium standard is being exceeded; or
2. There is an extremely high amount of total hexavalent chromium in the groundwater at the DFC; or
3. Both of the above.

Based on EPA's knowledge of the DFC, and GSA's assertion that there is no known history of chromium production or pollution at the DFC, EPA believes it reasonable to assume that (1) above is most likely correct. Therefore, total trivalent chromium is a pollutant of concern. However, to simplify the monitoring requirements and ease the financial burden on the Permittee, monitoring for total chromium will be used as a surrogate for total trivalent chromium to satisfy the effluent limits. CDPHE approved this approach (see footnote a in Addendum Table 1 above) – they allow total chromium monitoring in lieu of total trivalent chromium monitoring, because analytical results for total chromium are adequately representative of total trivalent chromium in cases where hexavalent chromium is not expected to be present.

This assumption avoids adding hexavalent chromium monitoring requirements to the Permit or forcing the Permittee to begin a chromium valence state study at the DFC. The Permittee may sample for additional parameters (such as hexavalent chromium) if they want to pursue this topic further.

Chromium effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

A footnote has been added to Tables 2 and 3 of the Permit indicating that monitoring results for total chromium will be allowed to show compliance with the total trivalent chromium effluent limitation and that the Permit does not require monitoring for total trivalent chromium.

8.4 Copper (D): A total of 16 locations (11 monitor wells, 2 resident wells and 2 wire line testing silos) have results from Copper (D) (Cu-D) analysis of groundwater samples which equal or exceed the proposed effluent standard of 15 ug/L.

As seen in Table 3, 15 locations have detected levels above the potential effluent standard of 15 ug/L. Four of these results have undefined SMDLs (SMDL < 0), TW08-03, TW16-14, TW16-37 and TW16-34. For the statistics in the Table 4, those results with a SMDL < 0 were excluded. Based on review of results of the remaining 11 locations, three of the Cu-D results were greater than the corresponding Cu-T detected or Non-Detect (ND). In addition, two of the results are from the Wire Line Testing Silos, which were removed in 2009-2010. The results from these Silos may have been impacted by chemicals used during the wire line testing activities. One of the wells, Res Well "I," is approximately 2000 ft down gradient for the DFC.

Removing the following from the study:

- the four locations with data validation issues (SMDL not defined),

- the three locations, with a dissolved concentration greater than the Cu-T, detected results greater than or equal to the RL,
- the two silos, due to potential contamination from chemicals used in testing process, and one silo removed by Cu-D concentration greater than Cu-T concentration,
- and the one Residential Well 2000 ft down-gradient,

leaves, 6 remaining locations with detected levels greater than the proposed effluent standard of 15 ug/L. These 6 locations have an average concentration 18.5 ug/L and maximum concentration of 24 ug/L. The two wells within the permit area with results are GSA-24 and MPE-3, with values of 17 and 24 ug/L respectively. With the 15 samples, all locations, there are less than 1 % of the samples which exceed the potential effluent standard. With 2 samples, locations within the permit limits, there is .13% of the samples. Therefore, based on this review, depending on a settled effluent standard, GSA believes that Copper doesn't need to be monitored.

Please review TS Graph #3- Copper and Figure #3- Copper. See Table 3 Review DFC Database (Validation Codes 1 thru 4), and Table 4: GW Statistical Review DFC Database (Validation Codes 3, thru 4/SMDL >0.

EPA's Response to Comment #8.4:

Monitoring requirements for copper were included in the draft permit because heavy metals were considered a pollutant of concern based in the 1997 Administrative Order on Consent, yet copper monitoring data was not provided with the application nor upon an initial request of data from the facility. However, during the public comment period the Permittee provided a large sampling dataset which included copper. "GSA Table 3", provided with GSA's public comment, contains summary data for several thousand copper sampling events. The data provided show that even after removing potentially "bad" data and locations outside the area of "known potential impacts," there are still samples that are near or above the applicable water quality standards. Based on this data, copper must be considered a pollutant of concern and effluent monitoring will be required.

Copper effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

No changes were made to the Permit as a result of this comment.

8.5 Iron (T): Review of the entire dataset validation codes 1-4, there are over 1300 results which exceed the proposed Effluent Standard of 1000 ug/L. However, if background concentration is accounted for, the number of locations will be reduced; GSA has not yet applied background, so the final number of locations which exceed is unknown.

Over 76% of groundwater samples collected for Iron (T) analysis, of the dataset with SMDL >0, exceed CDPHE's proposed effluent standard of 1000 ug/L. Completing the same evaluation for Iron (T) as for Iron (D), the percentage of results which exceed the proposed effluent standard decrease significantly to

5.45%. If background concentrations cannot be applied, then GSA concurs with monitoring for Iron (T), but has concerns with the low value of 1000 ug/L, given background concentrations are 130,000 ug/L.

EPA's Response to Comment #8.5:

EPA understands the concern; however, the total recoverable iron water quality standards are to ensure protection of aquatic life in McIntyre Gulch. No changes were made to the Permit as a result of this comment.

8.6 Lead (D): Using the dataset with validation codes 1 to 4, there are a total of 15 samples with analytical results that exceed the proposed standard for lead (D). Three of these locations (one location has two results) have an SMDL of -999 implying the data are suspect and should not be used for decision making. That leaves a total of 10 locations (9 wells and one wire line testing silo) which have results of Lead (D) analysis of groundwater samples which equal or exceed the proposed effluent standard of 4.7 ug/L. The data from the silo, though included in the statistics, are not discussed further; as stated above, the silos have had chemicals applied during their operation which have likely impacted results.

GSA has conducted three different evaluations of the data (data with a SMDL >0): 1) the initial evaluation compared the entire dataset (4601 records) to the CDPHE proposed effluent standard (4.7 ug/L) and the Colorado Agriculture Ingestion (COAG)/(ECO) (2.5 ug/L) with the ECO Std compared to the SMDL, 2) the second evaluation also compared the entire dataset to the same values with the effluent standard compared to the SMDL, and 3) the third evaluation did the same evaluation with a limited data set for locations within the permit limits (1717 records).

Based on this review, seven of the 10 locations are outside the permit limits; the remaining three locations within the permit limits are MPE-3, GSA-24 and UNK-1. As UNK-1 is outside the fence within the CDOT and City of Lakewood right of way (ROW) (its construction and other details are not well documented) and is on the edge of the permit limits, it should be excluded from the decision making process for this study. However, the two remaining locations are within the permit limits. MPE-3 had Pb-D analyzed in seven groundwater samples with only one detection of 19 ug/L; all other results were ND, with an average SMDL of 0.97 ug/L and a maximum SMDL of 2.0 ug/L. GSA-24 had Pb-D analyzed in 10 groundwater samples with two detections, one of 5.7 ug/L and the second of 0.14 ug/L; all other results were ND, with an average SMDL of 0.1455 ug/L and a maximum SMDL of 0.19 ug/L. Though the number of samples from both wells are limited, it is GSA's opinion the two results are statistical outliers. Therefore, GSA requests that Pb-D be removed from the parameter list.

Please review the data GSA presents for its position in the following tables, time series graphs and figures: Figure 4- Lead Locations, Table 6- Lead Results, TS Graph #4- Lead, Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4), and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4/SMDL>0).

EPA's Response to Comment #8.6:

EPA acknowledges some of GSA's validation codes may suggest that samples should be excluded (although it is worth noting that EPA does not know what validation codes 1-4 mean). EPA also acknowledges that some of these wells may be outside or just outside the area of "known potential impacts." Regardless, the dissolved lead data provided show several exceedances of the lead water

quality standard, as well as other values which are at or just below the standard. EPA determines monitoring requirements (in part) by predicting a "maximum potential" effluent concentration from the data set using statistical procedures based on an assumed lognormal distribution. Our procedures (outlined in Chapter 3 of the *Technical Support Document for Water Quality-based Toxics Control*, EPA 1991) use the maximum observed pollutant concentration (after removing any "bad" data), the number of available effluent data points for the measured concentration of the pollutant and the coefficient of variation of the data set – which is a measure of the variability of data around the average – to predict the "maximum potential" effluent concentration. Even when removing the highest observed value, it does not change the fact that our analysis suggests there may be reasonable potential for lead to cause or contribute to an exceedance of the applicable water quality standard.

Lead effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

No changes were made to the Permit as a result of this comment.

8.7 Manganese (D): Over 200 samples have results of Manganese (D) (Mn-D) analysis of groundwater samples which equal or exceed the proposed effluent standard of 2006 ug/L. GSA has conducted three different evaluations of the data (data with a SMDL >0):1) the initial evaluation compared the entire dataset (2596 records) to the CDPHE proposed effluent standard (2006 ug/L) and the Colorado Agriculture Ingestion (COAG)/(ECO) (200 ug/L) with the ECO standard compared to the SMDL, 2) the second evaluation also compared the entire dataset to the same values with the Effluent Standard compared to the SMDL, and 3) the third evaluation did the same evaluation with a limited data set for locations within the permit limits (1273 records).

Based on this review, specifically the review of data from only those locations within the permit limits, there remains 83 locations which exceed the 2006 Proposed Effluent Standard. At this time, GSA cannot dispute EPA's requirement for monitoring or with CDPHE's proposal of an effluent standard of Mn-D as part of this permit. GSA presents its position in the following tables: Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4) and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4/SMDL>0).

EPA's Response to Comment #8.7:

EPA thanks you for the analysis and comments. No changes were made to the Permit as a result of this comment.

8.8 Mercury (T): All of the groundwater samples collected and analyzed for mercury exceed CDPHE's Proposed Effluent Standard of 0.01 ug/L, either because the compound was detected or due to both the RL and SMDL exceeding the standard of 0.01, such that for the ND results, the presence is indeterminable related to the proposed standard. With such a low proposed effluent standard, with a standard RL and associated SMDL, the presence of Mercury (T) in relation to these values cannot be determined.

GSA has concern, given that the current proposed standard appears unachievable, and of what the process will be to determine if there is an exceedance. GSA, under the RCRA CO, makes decisions on qualified data, but for an exceedance with this process, GSA believes that only detections above the RL should be cause for a violation to occur under this permit. GSA presents the data for its position in the following tables: Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4) and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4/SMDL>0).

EPA's Response to Comment #8.8:

EPA is aware that the applicable mercury water quality standard is very low. Many of the methods used to detect mercury have method detection limits and/or reporting limits that are above the relevant water quality standard. Under the National Pollutant Discharge Elimination System (NPDES) program, only ''sufficiently sensitive'' methods approved in 40 CFR 136 are to be used for analysis of pollutants or pollutant parameters under an NPDES permit. The Permit requires adherence to this guidance in section 6.2 (Monitoring Procedures). Sufficiently sensitive is defined in the Permit (and 40 CFR 122.44) as using a 'method minimum level' (ML). In cases where the effluent limits or standards are at or near the ML (as in the case of mercury), a method is sufficiently sensitive when it has *"the lowest ML of the analytical methods approved under 40 CFR part 136…for the measured pollutant or pollutant parameter."* This means that GSA must use the EPA-approved method with the lowest ML when analyzing data. It is the responsibility of GSA to ensure that they are complying with the requirements in section 6.2 of the Permit.

In 2007 EPA addressed the sufficiently sensitive issue with respect to mercury in a memorandum titled ''Analytical Methods for Mercury in NPDES Permits." This memorandum is publicly available at http://www.epa.gov/npdes/pubs/mercurymemo_analyticalmethods.pdf. The memorandum explains that even between EPA-approved methods for mercury, there is a wide range of sensitivity and quantitation levels. It clarifies that "only the most sensitive methods such as Methods 1631E and 245.7 are appropriate for sampling and analysis of mercury pursuant to the monitoring requirements within a permit."

Furthermore, in 2014 EPA published a clarification of existing regulations in the Federal Register (FR-2014-008-19). In this final rule, EPA clarifies that the term "minimum level (ML)" refers to "*either the sample concentration equivalent to the lowest calibration point in a method or a multiple of the method detection limit (MDL). Minimum levels may be obtained in several ways: They may be published in a method; they may be sample concentrations equivalent to the lowest acceptable calibration point used by a laboratory; or they may be calculated by multiplying the MDL in a method, or the MDL determined by a lab, by a factor. For the purposes of this rulemaking, EPA is considering the following terms related to analytical method sensitivity to be synonymous: "quantitation limit," "reporting limit," "level of quantitation," and "minimum level."*" (FR 2014-08-19, page 49003).

Based on this guidance, laboratories should report data as described in the method, per calibration results, or per standard protocol. It is the responsibility of the Permittee to ensure that appropriate methods are requested from the laboratory, and to ensure that the selected laboratory can provide the method minimum levels needed to meet the sufficiently sensitive requirement. If a permittee or laboratory have questions regarding the suitability of a specific method in a given situation, or have technical questions on its use, they should consult with EPA for further guidance. In cases where effluent limits may be below the method ML or the laboratory's lowest calibration standards,

laboratories are encouraged to find solutions to achieve lower MLs while maintaining the precision and accuracy specified in the method.

For purposes of the Permit and calculating averages and reporting in the DMR form, analytical values that do not provide a specific numeric result because they are less than the method minimum level for a parameter – even if the method minimum level is above the permitted effluent limit – are not considered to be in exceedance of the permitted effluent limit for that parameter. For example, if an effluent limit was 1 mg/L, and the method minimum level was 2 mg/L, any values reported as "<2 mg/L" or equivalent would not be considered to be in exceedance of the permitted effluent limit for that parameter.

EPA also notes that several of the methods for mercury with the lowest MLs make recommendations for sampling protocols (gloves, double-bagging, "clean hands/dirty hands" techniques, etc.) so as to avoid potential contamination during the sampling event. EPA recommends GSA follow low level mercury sampling protocols when collecting and handling these samples.

No changes were made to the Permit as a result of this comment.

8.9 Nickel (D): All but one of the groundwater samples collected and analyzed for nickel (D) (Ni-D), if detected, was below the proposed effluent standard of 88.5 ug/L. The one location/sample is MPE-1, with a detected value of 350 ug/L. The next closest detected result is 33 ug/L. It appears the result from MPE-1 is an outlier. There are four sample events of ND with an RL of 40 ug/L and two detections of 8 and 6.4 ug/L. Therefore, GSA requests that Ni-D be removed from the parameter list. GSA presents the data for its position in the following tables, time series graphs and figures: Figure 7- Nickel Locations, Table 7- Nickel Results, Table 7A- MPE-1 Nickel Results, TS Graph #7- Nickel, Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4), and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4).

EPA's Response to Comment #8.9:

Monitoring requirements for nickel were included in the draft permit because heavy metals were considered a pollutant of concern based in the 1997 Administrative Order on Consent, yet nickel monitoring data was not provided with the application nor upon an initial request of data from the facility. However, during the public comment period the Permittee provided a large sampling dataset which included nickel. "GSA Table 3", provided with GSA's public comment, contains summary data for several thousand nickel sampling events. EPA acknowledges that the nickel data suggest that most of the samples are below the applicable water quality standard. However, EPA typically uses an analysis based on the maximum concentration observed, unless it can be clearly removed as an outlier based on sampling and/or reporting error. Other than being an order of magnitude higher than the other samples, there is no valid reason provided to remove this value as erroneous –it is possible this is a valid sample at the upper end of the population distribution. Based on this data, nickel must be considered a pollutant of concern and effluent monitoring will be required.

Nickel effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water

quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

No changes were made to the Permit as a result of this comment.

8.10 Selenium (D): CDPHE has proposed two effluent standards to be applied as part of this permit, a 30-Day value of 4.6 ug/L and daily maximum of 18.4 ug/L for Selenium (D) (Se-D). GSA has conducted two different evaluations of the data (data with a SMDL >0), the initial evaluation compared the entire dataset (2689 records) to the proposed standards and to the lower standard (4.6 ug/L) compared to the SMDL and the second evaluation compared a limited data set for locations within the permit limits (1199 records) to the same two proposed effluent standards.

Based on these evaluations, approximately 29% of each dataset exceed the listed standard. Therefore, at this time, GSA cannot dispute EPA's requirement to monitor or CDPHE's proposal of an effluent standard of Se-D as part of this permit. GSA presents the data for its position in Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4) and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4/SMDL>0).

EPA's Response to Comment #8.10:

EPA thanks you for the analysis and comments. No changes were made to the Permit as a result of this comment.

8.11 Silver (D): CDPHE has proposed two effluent standards to be applied as part of this permit, a 30-Day value of 0.88 ug/L and daily maximum of 5.6 ug/L for Silver (D) (Ag-D). GSA has conducted two different evaluations of the data (data with a SMDL >0), the initial evaluation compared the entire dataset (2690 records) to the proposed standards and the lower standard (0.88 ug/L) compared to the SMDL and the second evaluation compared limited data set for locations within the permit limits (1196 records) to the same two proposed effluent standards.

Based on these evaluations, a little less than 1% of each dataset exceed the listed standard. Of the 10 locations with detected levels above the 30-Day Effluent Std (0.88 ug/L), eight of the locations remain upon reducing the dataset to those locations within the permit limits (See Time Series Graph). However, for all of these locations, the detected results are qualified because the results are between the RL, which averages approximately 5 ug/L, and the SMDL, which averages approximately 0.108 to 0.395 ug/L. Also, not a single detection is above the daily maximum of 5.6 ug/L.

Therefore, GSA could argue that Ag-D is not a parameter of concern due to all data being qualified. At a minimum, GSA has concern, given the 30 Day proposed standard of 0.88 ug/L appears unachievable, of what the process will be to determine if there is an exceedance. GSA, under the RCRA CO, makes decisions on qualified data, but for an exceedance with this process, GSA believes that only a detection above the RL should be cause for a violation to occur under this permit. GSA presents the data for its position in the following tables, time series graphs and figures: Figure 8- Silver Locations, TS Graph #8-Silver, Table 3- GW Statistical Review DFC Database (Validation Codes 1 thru 4), and Table 4- GW Statistical Review DFC Database (Validation Codes 3 thru 4).

EPA's Response to Comment #8.11:

See EPA's response to 8.8. No changes were made to the Permit as a result of this comment.

8.12 Zinc (D): EPA has calculated an effluent standard to use as an evaluation tool, a TVS value of 207 ug/L for Zinc (D) (Zn-D). GSA has conducted two different evaluations of the data (data with a SMDL >0); the initial evaluation compared the entire dataset (1589 records) to the calculated standard and the second evaluation compared a limited data set for locations within the permit limits (775 records) to the same two proposed effluent standards.

Based on review of the entire dataset, results from two locations, GSA-49 and Res Well "LL," exceed the EPA's calculated effluent standard of 207 ug/L. Restricting the sample locations to those within the permit limits, these two locations were excluded, and there are now no results which exceed the calculated effluent standard. Additionally, GSA-49's result of 5800 ug/L was the duplicate result for the February 2004 sample event. The primary result was ND with a RL of 20 ug/L. This result appears to be an outlier in addition to being located outside the permit limits. The residential location "LL" is over 3500 ft down gradient of the permit limits. As such, GSA requests that Zn-D be removed from the parameter list.

EPA's Response to Comment #8.12:

Monitoring requirements for zinc were included in the draft permit because heavy metals were considered a pollutant of concern based in the 1997 Administrative Order on Consent, yet zinc monitoring data was not provided with the application nor upon an initial request of data from the facility. However, during the public comment period the Permittee provided a large sampling dataset which included zinc. "GSA Table 3", provided with GSA's public comment, contains summary data for several thousand zinc sampling events. The data provided show that even after removing potential outliers and locations outside the area of "known potential impacts," there are still samples that are near or above the applicable water quality standards. Based on this data, nickel must be considered a pollutant of concern and effluent monitoring will be required.

Zinc effluent monitoring data will provide a robust dataset that will allow a more accurate reasonable potential analysis to be conducted in the future. During the next permit renewal, if a reasonable potential analysis can be conducted on an adequate number of effluent samples, and this analysis shows there is no reasonable potential for that pollutant to cause or contribute to an exceedance of applicable water quality standards, then monitoring requirements for that pollutant may be reduced or removed from the Permit.

No changes were made to the Permit as a result of this comment.

8.13 Phosphorus (T): Under Reg #38, Table 16k (Lakewood Gulch Effluent Standards). for the Mainstem of Lakewood Gulch, the listed standard is 170 ug/L. GSA has conducted two different evaluations of the data (data with a SMDL >0); the initial evaluation compared the entire dataset (1089 records) to the Reg #38 Table. 16k Standard (170 ug/L) and the standard compared to the SMDL and the second evaluation compared a limited data set for locations within the permit limits (372 records) to Reg #38 Table. 16k Standard and the SMDL. Based on these evaluations, approximately 50% of each dataset exceed the listed standard. Therefore, at this time, GSA agrees to monitor for the inorganic parameter Phosphorus.

EPA's Response to Comment #8.13:

The phosphorus monitoring requirement is a 401 certification condition added by CDPHE. EPA does not comment on 401 certification conditions. However, EPA has determined that monthly monitoring for this parameter will be sufficient, as allowed in Colorado's 401 certification conditions (see footnote 'b' to Table 1 of the Addendum).

No changes were made to the Permit as a result of this comment.

8.14 Oil and Grease (T): All of the groundwater sample results (22 in total) collected and analyzed for Oil and Grease (T) (O&G-T) were below the EPA proposed effluent standard of 10 mg/L. Therefore, GSA requests that O&G-T be removed from the parameter list. GSA proposes that O&G only be analyzed for if a sheen is observed.

EPA's Response to Comment #8.14:

Per Table 3 of the Permit (page 9), a visual observation for oil and grease in the effluent is required on a weekly basis. If a visual sheen or floating oil is detected or observed in the discharge, the Permittee must immediately take a sample. No sample may exceed 10 mg/L. While the effluent limitation of 10 mg/L will remain, the commenter is requesting what is required in the Permit.

No changes were made to the Permit as a result of this comment.

8.15 Total Suspended Solids (T) (TSS-T): EPA has proposed two effluent standards to be applied as part of this permit, a 30 Day value of 30 mg/L and 7 Day value of 45 mg/L for TSS-T. GSA has conducted two different evaluations of the data (data with a SMDL >0); the initial evaluation compared the entire dataset (1040 records) to the proposed standards and the lower standard (30 mg/L) to the SMDL and the second evaluation compared a limited data set for locations within the permit limits (451 records) to the same two proposed effluent standards.

Based on these evaluations, over 25% of the samples from both datasets exceeded one or the other standard. Therefore, at this time, GSA cannot dispute EPA's requirement to monitor nor the proposed effluent standard of TSS (T) as part of this permit.

EPA's Response to Comment #8.15:

EPA thanks you for the analysis and comments. No changes were made to the Permit as a result of this comment.

Comment #9 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Page 12 of 25, Section 6.1, last sentence and Section 6.2, 2nd sentence: What sludge does EPA anticipate being generated in a dewatering system?

EPA's Response to Comment #9:

The language in section 6 of the Permit is a standard condition in EPA permits regarding representative sampling. Since the facility has no sludge monitoring requirements (see section 4 and Table 3 of the Permit), this language does not apply to this facility. The facility is not expected to generate or monitor for sludge.

No changes were made to the Permit as a result of this comment.

Comment #10 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Page 30, last paragraph of Section 10. The statement should read: During the public notice of the Permit, Colorado's State Historic Preservation Office (SHPO) will be notified as an interested party to provide any consultation opportunities should they not concur with no historic properties affected for this undertaking.

EPA's Response to Comment #10:

This statement in question is included to ensure that the requirements of the National Historic Preservation Act of 1966 are met. This Act (codified in 16 U.S.C. 470f) requires that, when issuing a discharge permit, EPA "*take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. The head of any such Federal agency shall afford the [Colorado SHPO] a reasonable opportunity to comment with regard to such undertaking."*

The language used in the statement of basis fulfills this obligation and is not substantively different than the language proposed in this comment. EPA reached out to the Colorado SHPO during the public notice to see if they concurred with EPA's determination, and they did not provide any feedback.

No changes were made to the Permit as a result of this comment.

Comment #11 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Page 11 of 31, Section 6.1.2, 3rd paragraph: States: "Therefore, no BOD_5, $CBOD_5$, or residual chlorine effluent limits or monitoring will be required". However, Table 3 (immediately below) lists the limitations for BOD_5, $CBOD_5$, and residual chlorine. What is the purpose of those limitations in Table 3 if monitoring for them will not be required? Is it just to show the Reg #62 limits or to provide the limits for TSS, pH and Oil & Grease?

EPA's Response to Comment #11:

The statement of basis is required to summarize the basis for permit conditions, including references to applicable statutory or regulatory provisions. Table 3 in the statement of basis shows that EPA considered Colorado Regulation No. 62 during permit development. As discussed in the statement of basis, due to their inapplicability to this particular discharge, BOD_5, $CBOD_5$, and total residual chlorine monitoring are not required in the Permit. While there are no regulatory requirements to sample for these parameters, the Permittee may sample for additional parameters (such as BOD_5, $CBOD_5$, and total residual chlorine) if they have a specific concern.

No changes were made to the Permit as a result of this comment.

Comment #12 – John Kleinschmidt, General Services Administration (GSA) [Permittee]

Page 20 of 31, Section 6.4.11, 3rd paragraph: States: "Acute WET testing shall be performed quarterly by the Permittee…". However, in the draft of the permit, Page 10 of 25, Table 3, for WET testing, it states: "Once Per Construction Project". Please clarify.

EPA's Response to Comment #12:

Thank you for noticing this typographical error in the statement of basis. The language should have read "Acute WET testing shall be performed once per construction project by the Permittee…." so as to match the language in the Permit.

No changes were made to the Permit as a result of this comment. However, the typographical error on page 20 of the statement of basis was corrected.

12.3 OTHER CHANGES

On December 23, 2020, EPA adjusted its civil monetary penalties for inflation, as required per the Federal Civil Penalties Inflation Adjustment Act (as amended). These adjustments were published in the Federal Register (85 Fed. Reg. 83818-83821). Section 7.2 of the Permit (Penalties for Violations of Permit Conditions) has been modified to reflect the updated adjustment date and penalty amounts.