

PLAN OF OPERATIONS
INTEGRATED WASTE
MANAGEMENT PLAN
Donlin Gold Project

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TABLE OF CONTENTS

Figures	iv
Tables	iv
Appendices.....	iv
Acronyms	v
Units of Measure	vii
Elements and Compounds.....	vii
1.0 INTRODUCTION	1-1
1.1 Plan Revisions	1-1
1.2 Project Location and Summary	1-2
2.0 WASTE MANAGEMENT REQUIREMENTS.....	2-1
2.1 Regulatory Overview	2-4
2.1.1 Definition of Solid Waste.....	2-4
2.1.2 Definition of Hazardous Waste.....	2-4
2.2 Waste Management Priorities	2-5
2.3 Purchasing of Materials.....	2-6
2.4 Waste Minimization	2-7
2.5 Recycling and Reuse of Materials	2-8
2.6 Waste Segregation.....	2-9
2.7 Container Management.....	2-9
2.8 Procedures for Emptying Containers.....	2-10
2.9 Onsite Waste Management.....	2-11
2.9.1 Inert Landfill Operation.....	2-11
2.9.2 Inert Landfill Monitoring and Reporting	2-12
2.9.3 Inert Landfill Reporting and Record Keeping.....	2-13
2.10 Materials to be managed off Site.....	2-13
2.11 Hazardous Waste Management	2-13
2.11.1 Hazardous Waste Determinations	2-14
2.11.2 Hazardous Waste Accumulation	2-14
2.11.3 Hazardous Waste Reporting and Record Keeping.....	2-14
2.11.4 Satellite Accumulation Areas	2-15
2.11.5 Shipments of Hazardous Waste.....	2-16
2.12 Universal Waste Management	2-16
2.13 Used Oil Management.....	2-17
2.14 Employee Training	2-17
2.15 Handling and Storage of Hazardous Materials	2-18
2.16 Specific Hazardous Materials Handling Requirements	2-18
2.16.1 Explosives	2-19
2.16.2 Sodium Cyanide	2-19

2.17	Inventory of Hazardous Materials	2-20
2.18	Safety Data Sheets	2-20
2.19	Inspections.....	2-20
2.20	Reporting Requirements	2-21
3.0	SPECIFIC WASTE HANDLING METHODS	3-1
3.1	Absorbents/Floor Dry	3-1
3.2	Antifreeze/Coolant.....	3-1
3.3	Asbestos and Lead Based Paint	3-2
3.4	Batteries.....	3-2
3.5	Building Construction and Demolition Materials	3-2
3.6	Camp Waste	3-3
3.7	Chemicals / Reagents	3-3
3.8	Containers / Packaging	3-4
3.8.1	Empty Drums.....	3-4
3.8.2	Compressed Gas Cylinders	3-5
3.8.3	Aerosol Cans	3-5
3.9	Contaminated Soil.....	3-5
3.9.1	Cyanide-Contaminated Soil	3-5
3.9.2	Petroleum-Contaminated Soil	3-6
3.9.3	Caustic / Acid Spills Outside the Process Plant and Containment	3-6
3.10	Filters	3-7
3.11	Food Waste (Putrescibles)	3-7
3.12	Assay Lab Waste	3-8
3.13	Light Bulbs/Lamps.....	3-8
3.13.1	Hazardous Lamps.....	3-8
3.13.2	Non-Hazardous Lamps	3-9
3.14	Lubricants / Petroleum Products	3-9
3.14.1	Brake Fluid	3-9
3.14.2	Grease.....	3-9
3.14.3	Used Oil.....	3-9
3.15	Mineral Processing.....	3-9
3.16	Miscellaneous Materials	3-10
3.17	Oily Waste.....	3-10
3.18	Paints.....	3-11
3.19	Radioactive Materials	3-11
3.20	Rags	3-11
3.21	Scrap Metal.....	3-12
3.22	Solvents	3-12
3.23	Tires.....	3-12
3.24	Wildlife	3-12

3.25	Wood, Paper, and Cardboard.....	3-12
4.0	SPILL PREVENTION, RESPONSE, AND REPORTING	4-1
5.0	REFERENCES	5-1

FIGURES

Figure 1-1:	Project Location Map.....	1-3
Figure 2-1:	Project Layout	2-2
Figure 2-2:	General Arrangement.....	2-3

TABLES

Table 1-1:	Record of Changes and Amendments	1-2
Table 2-1:	Operational and Inspection Requirements for Solid Waste Landfills.....	2-12
Table 2-2:	Applicable Regulations for Hazardous Waste Generators.....	2-15
Table 4-1:	Oil Spill Prevention and Response Plans	4-1

APPENDICES

Appendix A:	Requirement for Hazardous Waste Accumulation Areas
Appendix B:	Reporting Criteria for Process Solutions

ACRONYMS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ANFO	Ammonium nitrate and fuel oil
APDES	Alaska Pollutant Discharge Elimination System
AS	Alaska Statute
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Responsibility, Compensation and Liability Act
CESQG	Conditionally Exempt Small Quantity Generator
CFATS	Chemical Facility Anti-Terrorism Standards
CFR	Code of Federal Regulations
CIL	carbon-in-leach
CWA	Clean Water Act
DHS	Department of Homeland Security
EHS	extremely hazardous substance
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
HazCom	hazardous communication
HAZMAT	hazardous materials
HCS	hazard communication standards
HID	high-intensity discharge
IAEA	International Atomic Energy Agency
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICM Code	International Cyanide Management Code
IMDG	International Maritime Dangerous Goods
ISO	International Organization for Standardization
IWMP	Integrated Waste Management Plan
IUR	inventory update reporting
LED	light-emitting diodes
LEPC	Local Emergency Planning Committee
LQG	large quantity generator
MSHA	U.S. Department of Labor Mine Safety and Health Administration
OSHA	U.S. Department of Labor Occupational Safety & Health Administration
PPE	personal protective equipment
RCRA	Resource Conservation and Recovery Act
SAG	semi-autogenous grinding
SDS	safety data sheet
SERC	State Emergency Response Commission
SPCC	spill prevention, control, and countermeasures
SQG	small quantity generator
TCLP	Toxicity Characteristic Leaching Procedure

TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDf	Treatment Storage and Disposal Facility
TSF	tailings storage facility
UNR	mercury suppressant
USCG	U.S. Coast Guard
USDOT	U.S. Department of Transportation
WRF	Waste Rock Facility

UNITS OF MEASURE

>	greater than
≤	less than or equal to
cm	centimeter
ft	foot/feet
kg	kilogram
km	kilometer
lb	pounds
L	liter
m	meter
mg/L	milligrams per liter
Mst	million short tons
Mt	million tonnes
ppm	parts per million
st	short ton
t	tonne

ELEMENTS AND COMPOUNDS

MIBC	methyl isobutyl carbinol
NiCad	nickel cadmium
NiMH	nickel metal hydride
PAX	potassium amyl xanthate
WAD CN	weak acid dissociable cyanide

1.0 INTRODUCTION

This Integrated Waste Management Plan (IWMP) has been developed for the proposed Donlin Gold project to describe the required procedures for managing solid wastes¹ and hazardous materials² generated at the proposed project facilities. The IWMP also includes procedures for reusing and recycling materials wherever possible, which is a priority. The *Tailings Management Plan, Volume IIIA*, SRK 2016a and *Waste Rock Management Plan, Volume IIIB*, SRK 2016b are stand-alone documents, containing specific management methods for tailings and waste rock. A full description of the project is available in the *Project Description, Volume I*, SRK 2016c.

The environmental monitoring planned for the proposed Donlin Gold Project, which is associated with this IWMP, includes monitoring of surface water, groundwater, seepage, and wildlife, as described in the *Integrated Waste Management, Monitoring Plan, Volume VIIA*, SRK 2016d a stand-alone document.

1.1 Plan Revisions

This IWMP may be revised periodically during construction and operations as additional data or information becomes available based on operational observations and monitoring results. Revisions may also be warranted based on operational changes, changes to Integrated Waste Management Permit requirements or other information. Table 1-1 provides a record of these changes.

¹ ; AS 46.03.900(26)"solid waste" means garbage, refuse, abandoned, or other discarded solid or semi-solid material, regardless of whether subject to decomposition, originating from any source.

² As per 49 CFR Section § 105.5, *Hazardous material* means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designated as hazardous in the Hazardous Materials Table (see 49 CFR § 172.101), and materials that meet the defining criteria for hazard classes and divisions in 49 CFR part 173 subchapter C.

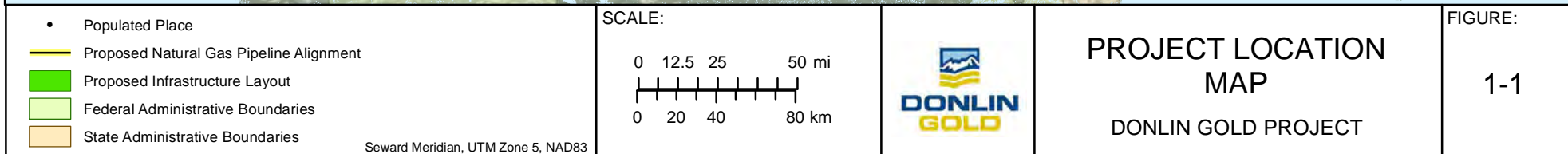
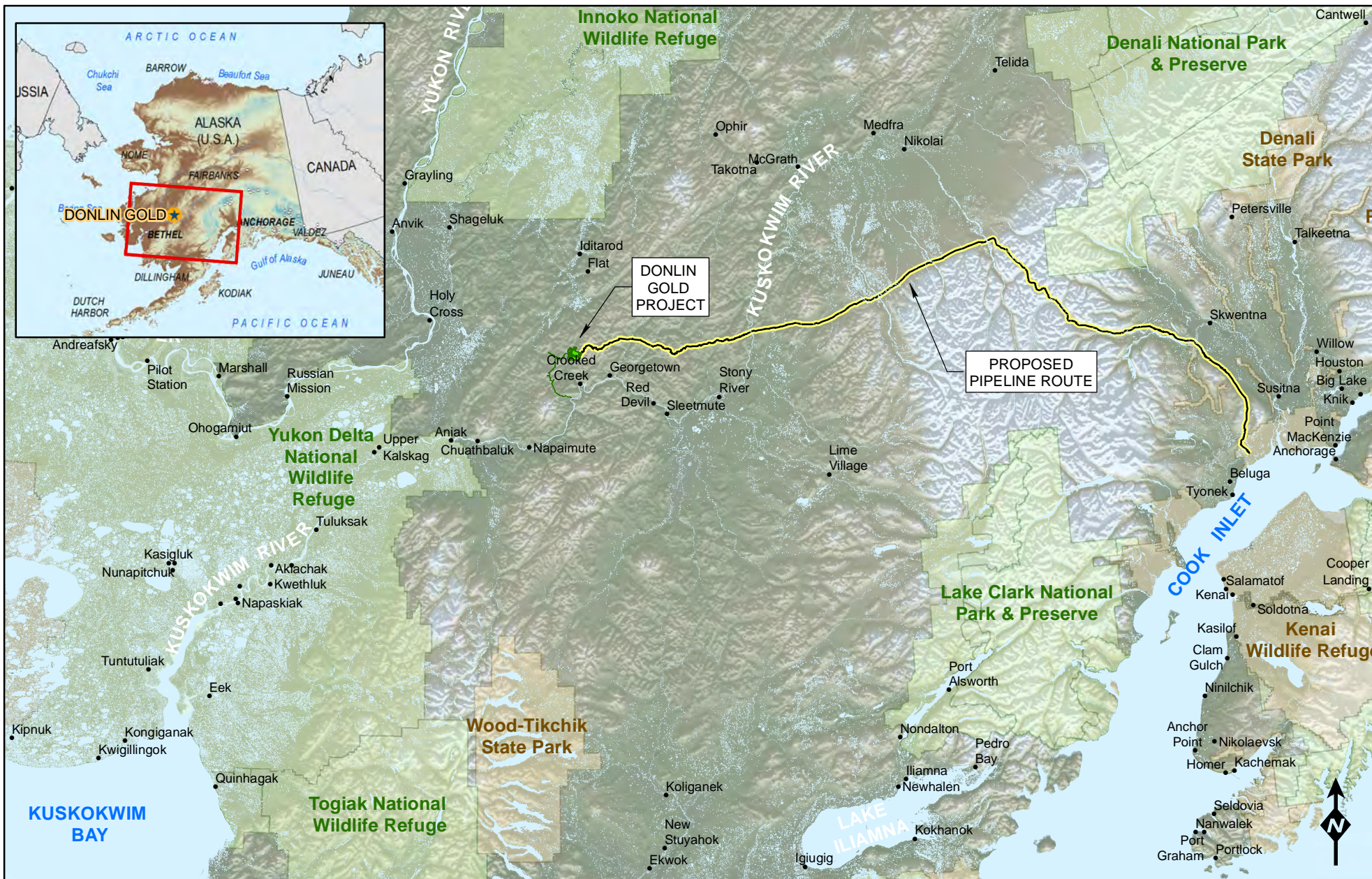
Table 1-1: Record of Changes and Amendments

Date	Section (s) Revised or Amended

1.2 Project Location and Summary

The proposed Donlin Gold project is located approximately 277 miles (446 km) west of Anchorage, 145 miles (233 km) northeast of Bethel, and 10 miles (16 km) north of the village of Crooked Creek (Figure 1-1). Bethel, 73 river miles (117 km) upstream from the mouth of the Kuskokwim River on the Bering Sea, is the regional center for the Yukon-Kuskokwim region of Alaska. Bethel is 177 river miles (285 km) southwest of the proposed Jungjuk Port site. The village of Aniak, located on the Kuskokwim River, approximately 57 river miles (92 km) southwest of the proposed Jungjuk Port site, is the regional center for the middle Kuskokwim Valley (Figure 1-1).

The project will operate for approximately 27 years and produce an average of over one million ounces of gold annually. A description of the Project can be found in the Project Description (SRK 2016c).



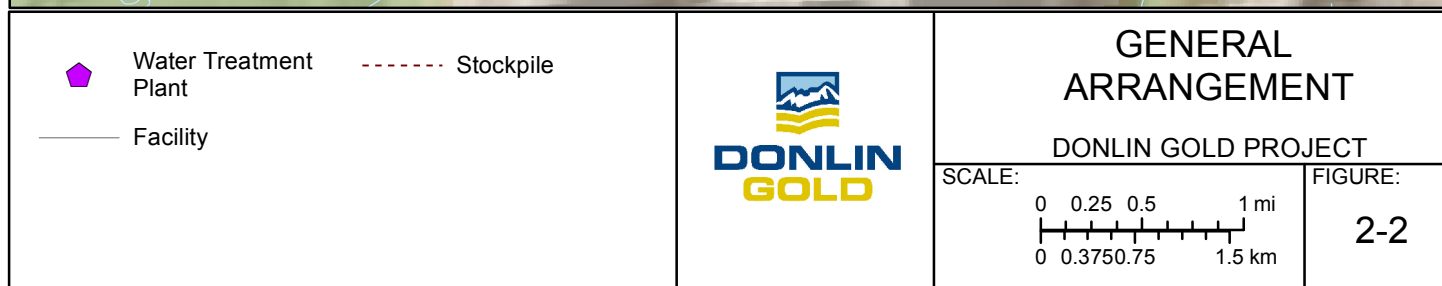
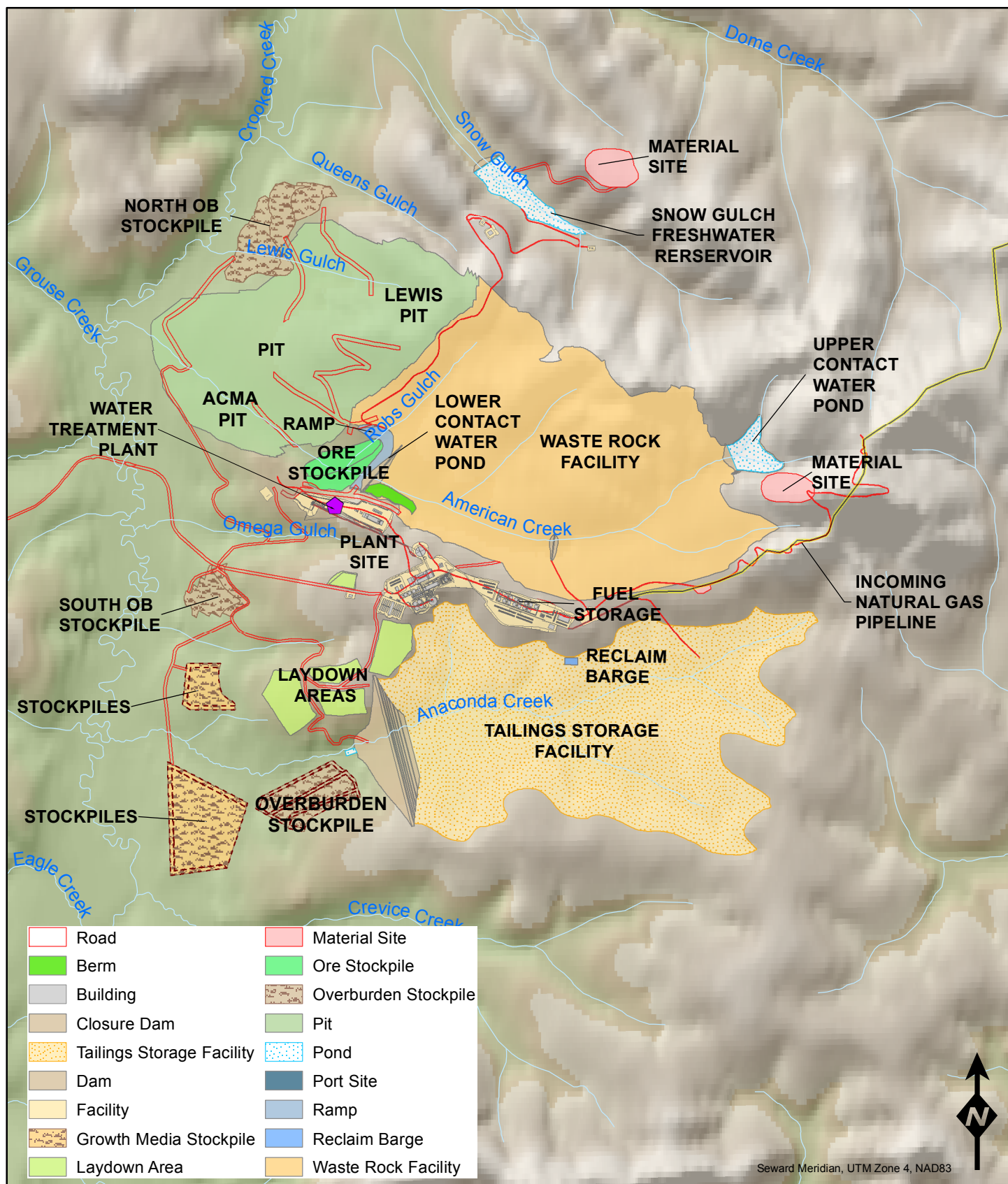
2.0 WASTE MANAGEMENT REQUIREMENTS

The following sections provide an overview of the regulatory requirements applicable to the management of solid wastes and the management procedures that would be employed by the proposed Donlin Gold project to handle wastes safely and in accordance with all applicable regulations. The locations of the mine footprint and offsite facilities are shown in Figure 2-1. Key waste management facilities include the Tailings Storage Facility (TSF), Waste Rock Facility (WRF), and solid waste inert landfills, located within the WRF (Figure 2-2).

Management of wastes at the proposed Donlin Gold project would begin before the materials are purchased by evaluating the material hazardous characteristics, potential environmental impacts, and disposal requirements. In general, the proposed Donlin Gold project would minimize the overall generation of waste to the extent practical and minimize the use of materials regulated as hazardous wastes when they no longer serve their intended purpose. Materials would be reused and recycled whenever possible. Permitted, solid waste landfills would be constructed on site for the disposal of inert solid wastes, in accordance with the landfill permits administered by the Alaska Department of Environmental Conservation (ADEC) and the regulations contained in Title 18 Alaska Administrative Code (AAC) Chapter 60 (18 AAC 60). Contact water from waste management facilities would be managed to prevent exceedances of State of Alaska water quality standards. Details regarding water management can be found in the *Water Resources Management Plan, Volume II*, SRK 2016e.

Materials that cannot be managed on site, such as some liquid wastes, hazardous wastes, certain items to be recycled or reused, and wastes prohibited from disposal in the landfills, would be shipped off site for reuse, recycle, treatment, or disposal at appropriate facilities.

The waste management methods discussed in this section are based on the applicable regulations at the time this Plan was written. Changes to management methods may be required as regulations are modified. Additionally, the waste management permit may contain additional provisions that may necessitate changes to the methods discussed herein.



2.1 Regulatory Overview

Solid wastes are regulated in the State of Alaska under two main bodies of regulations:

- the Resource Conservation and Recovery Act (RCRA) federal regulations contained in Title 40 Code of Federal Regulations (CFR), Parts 260 to 279.
- the State of Alaska regulations contained in 18 AAC 60, Solid Waste Management.

Hazardous wastes are regulated by the U.S. Environmental Protection Agency (EPA), Region 10 in Alaska, in accordance with RCRA regulations. Alaska is one of the few states that does not have the authority to administer hazardous waste regulations and, therefore, defers to federal regulations. Non-hazardous solid wastes, tailings, and waste rock are mainly managed under the state regulations in 18 AAC 60, which includes permitted solid waste inert landfills.

When a material can no longer be used for its original purpose, or otherwise meets the definition of *solid waste* as defined in Section 2.1.1, a determination must be made as to whether the solid waste is a *hazardous waste* or not as defined in Section 2.1.2. Waste determinations are discussed in Section 2.11.1. Once a waste determination has been made, the appropriate management method for the waste can be identified.

2.1.1 Definition of Solid Waste

The definition of solid waste can be found in 40 CFR § 261.2. A solid waste is any material, liquid or solid, with the exception of materials excluded from the regulations that are a ***discarded material***, meaning a material that is:

1. *Abandoned*:
 - disposed of or
 - burned or incinerated or
 - accumulated, stored, or treated (but not recycled) before, or in lieu of, being abandoned by disposal, burned, or incinerated.
2. *Recycled or accumulated, stored or treated before recycling* if it is:
 - used in a manner constituting disposal
 - burned for energy recovery
 - reclaimed
 - accumulated speculatively
3. Considered *inherently waste-like*; or
4. A *military munition* identified as a solid waste in 40 CFR § 266.202.

There are several exclusions to the definition of solid waste, as provided in 40 CFR § 261.4(a), such as domestic sewage and point source discharges subject to regulation under Section 402 of the Clean Water Act (CWA).

2.1.2 Definition of Hazardous Waste

As defined in 40 CFR § 261.3, a solid waste is ***hazardous*** if:

1. It is not *excluded* from regulation as a hazardous waste under 40 CFR § 261.4(b).

2. It is a *characteristic hazardous* waste, i.e., it exhibits one of the characteristics of hazardous waste defined in Subpart C 40 § CFR 261:
 - ignitability
 - corrosivity
 - reactivity
 - toxicity
3. It is a *listed hazardous waste*, i.e., a waste listed in Subpart D of 40 CFR § 261 that has not been excluded in 40 CFR § 260.20 or 260.22.
4. It is a *mixture* of solid waste and one or more listed hazardous wastes, and it has not been excluded from regulation as a hazardous waste by an exemption to the regulations.
5. *Rebuttable presumption for used oil*, i.e., used oil containing more than 1,000 ppm total halogens is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in Subpart D of 40 CFR § 261. Persons may rebut this presumption by demonstrating that the used oil does not contain hazardous waste.

Solid wastes that are exempt from hazardous waste regulations are listed under 40 CFR § 261.4(b). Additionally, a number of exemptions are also listed in 40 CFR § 261.3, which defines a hazardous waste. Some of the important exemptions that could be applied at the proposed Donlin Gold project include:

- household waste (e.g., for products used for personal use at the camp facilities)
- mining overburden returned to the mine site
- solid wastes from the extraction, beneficiation of ores and minerals, also known as the Bevill Exemption³ (e.g., waste rock, tailings)
- non-terne-plated used oil filters that are not mixed with a “listed hazardous waste” and have been gravity hot-drained
- exemptions for mixtures that involve de minimis losses of certain hazardous wastes and laboratory wastewater discharged to water treatment systems regulated under an Alaska Pollutant Discharge Elimination System (APDES) permit.

It is important to note that intentionally mixing a hazardous waste with a non-hazardous solid waste can render the entire mixture a hazardous waste, subject to the full RCRA hazardous waste regulations and is not an acceptable method of waste disposal. There are a few exemptions to the mixture rule, however, they are only applicable under very specific circumstances and must be managed carefully to maintain compliance with RCRA.

2.2 Waste Management Priorities

In accordance with the State of Alaska Statute (AS) 46.06.021, in order to prevent and/or minimize the present and future generation of wastes, management decisions that may affect

³ “Bevill” exemption provides that “mining and mineral processing wastes generated by extraction, beneficiation, and processing activities” are exempt from regulation as hazardous wastes.

waste generation at the proposed Donlin Gold project would be made by considering the following order of priority options:

1. waste source reduction
2. recycling
3. waste treatment
4. waste disposal, in accordance with applicable law.

In order to accomplish this, the following would be done:

- Operations that generate wastes would be reviewed to identify opportunities for reducing waste and these opportunities would be implemented whenever possible.
- The properties of materials would be reviewed prior to purchase and every effort would be made to minimize the use of hazardous materials and those classified as hazardous wastes once they can no longer be used for their intended purpose.
- Methods for reusing and recycling materials would be promoted and implemented whenever possible to reduce waste.
- Non-hazardous solid wastes that are permitted for disposal on site would be disposed of at onsite, permitted, solid waste inert landfills, regulated by the ADEC, in accordance with 18 AAC 60.
- Materials that cannot be managed on site would be sent off site to appropriate facilities for recycling, reuse, treatment, and/or disposal.

2.3 Purchasing of Materials

The following procedures would be followed when purchasing materials for the proposed Donlin Gold project:

- Whenever possible, the Project would minimize the generation of hazardous wastes by avoiding the purchase of materials that would be regulated as hazardous wastes when the materials are no longer required for their intended purpose.
- To the extent practical, materials would be purchased in containers (e.g. totes or drums) that can be returned to the vendor.
- The Safety Data Sheets (SDSs) for new materials to be purchased would be reviewed to ascertain if the materials require special management under RCRA, Emergency Planning and Community Right to Know Act (EPCRA), Comprehensive Environmental Responsibility and Compensation Liability Act (CERCLA), Clean Air Act (CAA), or Toxic Substances Control Act (TSCA) (See EPA's "List of Lists").
- For materials requiring special handling or those classified as a hazardous waste if disposed, Donlin Gold would evaluate if a suitable substitute is available that is considered "less hazardous". Less hazardous can include a waste not classified as a hazardous waste if disposed, requires no special handling under the above-noted governing acts, generates less waste when disposed, can be reused or recycled, or is generally considered to have less of an impact on the environment.

2.4 Waste Minimization

Efforts to minimize waste begin at the purchasing phase and continue to the recycling and reuse of materials. Some examples of methods to minimize waste at the proposed Donlin Gold project include:

- Use of primarily low-toxicity solvents in parts washers:
 - Many solvents contain compounds that require the solvent be managed as hazardous waste when disposed of and are harmful to the environment.
 - Use of low-toxicity solvents minimizes the volume of hazardous solvent generated, provided the solvent is not mixed with other wastes that would render the solvent mixture hazardous.
 - The use of low-toxicity solvents also minimizes the volume of other wastes that could be generated such as rags. Rags used to wipe off chlorinated solvents must be managed as hazardous waste, just like the solvent.
- Reuse the same parts washer solvent repeatedly, thereby reducing the amount of waste solvent generated.
- Where fluorescent lamps are used, use low-mercury, (“green end cap”) and recycle lamps:
 - Many lamps must be regulated as hazardous waste once disposed of due to mercury and lead content. Recycling fluorescent lamps prevents them from entering the waste stream.
 - Low-mercury, fluorescent lamps are currently available. The mercury levels in these lamps are sufficiently low so they are not regulated as hazardous waste when disposed. These types of fluorescent lamps are preferred for use at the proposed Donlin Gold project.
- Recycle or reuse of materials such as antifreeze, batteries, reusable light vehicle tires, scrap metal, and used oil, as discussed in Section 2.5 below.
- Return containers to vendors or recycle them as scrap metal, which prevents the need for disposal of containers in landfills.
- Appropriate container management, including the provision of secondary containment and proper labeling:
 - Proper container management is *key* to reducing waste volumes.
 - Unlabeled containers holding unknown materials may require testing of the materials to determine the chemical constituents of the material, which can be costly.
 - Containers that are left uncovered and exposed to the elements may result in the material in the container becoming contaminated and unusable.
 - Containers without proper containment that become damaged can result in the contamination of other materials, such as soil, and may cause harm to the environment or personnel.
- Prevention of mixing of hazardous wastes with non-hazardous wastes through waste segregation, established procedures, and personnel training:

- Mixing hazardous and non-hazardous wastes may result in the entire mixture being regulated as hazardous waste and should be avoided.
- This is particularly important in the management of solvents and used oil.

2.5 Recycling and Reuse of Materials

The proposed Donlin Gold project would recycle materials to the extent practical. Due to the logistics of shipping recycled materials from the mine site by air or barge and the costs associated with recycling materials, Donlin Gold would evaluate the cost/benefit of its recycling program on a regular basis. Recycling opportunities would vary based on the need for recycled materials, vendors available to handle recycled materials, costs, economic factors, etc. Donlin Gold would adjust its recycling practices to respond to these changes.

The alternative to recycling depends on the nature of the material. Materials that are considered hazardous (e.g. certain types of batteries) would have a high priority for determining viable recycling alternatives since the only disposal alternative is offsite disposal in a hazardous waste disposal facility. Other materials that are not hazardous (e.g. scrap metal) may be disposed of on site in an appropriate manner if recycling becomes impractical.

Some of the key materials that may be recycled are discussed below. Due to the factors noted above, recycling of these materials may not always be possible or economically feasible, in which case the management methods would be reevaluated:

- antifreeze (ethylene and propylene glycol) – recycled and reused on site whenever possible
- mill liners – returned to vendor or shipped off site for recycling as scrap metal
- hazardous batteries – returned to vendor for recycling or reclaimed off site
- hazardous lamps – recycled off site
- compressed gas cylinders – returned to vendor for reuse or recycled as scrap metal
- pallets – reused and/or recycled off site
- reagent containers – returned to vendor for reuse
- reusable parts – sold/reused on site or off site where possible
- returnable/recyclable drums – returned to vendor for reuse and/or recycled as scrap metal
- scrap metal – recycled off site (except for mild steel)
- reusable light vehicle tires – returned to vendor for recycling
- used oil – used in production of ammonium nitrate and fuel oil (ANFO) explosive, used for energy recovery in boilers, or transported off site for recycling when not possible to use for production of ANFO or as boiler fuel
- aluminum beverage cans – recycled off site.

2.6 Waste Segregation

Waste management at the proposed Donlin Gold project would include appropriate segregation and management of wastes in accordance with applicable regulations and the specific waste handling procedures described in Section 3.0 as follows:

- Wastes destined for the incinerator (e.g., putrescible food waste, oily waste, etc.) would be placed in incinerator dumpsters. These dumpsters would be kept closed to prevent attracting wildlife.
- Inert wastes destined for the landfills would either be taken directly to a landfill or placed in landfill dumpsters.
- Dumpsters would be marked in a manner such that Donlin Gold personnel would be able to distinguish between incinerators and landfill dumpsters.
- Hazardous wastes would be placed in containers at Satellite Accumulation Areas (Section 2.11.4, for less than 55 gallons of waste) or placed in containers, appropriately labeled and brought directly to a Hazardous Waste Accumulation Area.
- Universal Wastes (lamps, batteries, mercury containing equipment) would be placed in containers at Universal Waste Accumulation Areas according to the procedures outlined in Section 2.12.
- Materials to be recycled would be placed in segregated containers designated for the specific type of material and managed as outlined in Section 3.0.
- Product mercury and mercury-containing materials would be managed in accordance with a mercury management plan (currently being developed), in compliance with all applicable regulations.
- All containers would be appropriately labeled and managed as described in Section 2.7 below.

2.7 Container Management

Containers would be managed in accordance with all applicable regulations as follows:

- All containers would be appropriately labeled according to the U.S. Department of Labor Occupational Safety & Health Administration (OSHA) or Mine Safety & Health Administration (MSHA) hazard communication standards (HCS) (OSHA “HCS” at 29 CFR § 1910.1200 or MSHA hazardous communication (HazCom) at 30 CFR § 47), as described in Section 2.15.
- Hazardous wastes would be labeled according to the requirements of RCRA:
 - Containers in satellite accumulation areas must be labeled with words describing the contents of the container or the words “*Hazardous Waste*.”
 - Containers in hazardous waste accumulation areas must be labeled with the words, “*Hazardous Waste*,” and the accumulation start date.
 - Containers holding universal waste must be labeled with the words, “*Universal Waste – waste type*,” “*Waste – waste type*,” or “*Used – waste type*” where “*waste type*” is either batteries, lamps, thermostats, or mercury-containing equipment.
- Containers of used oil would be labeled with the words “Used Oil.”

- Hazardous materials would be stored within appropriate containment systems designed to contain at least 110% of the volume of the largest container within the containment. The containment would be impermeable to the stored hazardous substances.
- Mercury containers would be managed in accordance with a mercury management plan (forthcoming), in compliance with all applicable regulations.
- Safety precautions listed in the SDS for each material stored would be followed.
- Containers would be kept closed except when adding or removing materials as required by RCRA for hazardous wastes, or as needed to prevent contamination of the material or harm to the environment or personnel.
- Inspections would be conducted as required by the regulations and as needed to manage containers appropriately.
- Containers would be emptied appropriately (Section 2.8).
- Small containers of flammable materials would be stored in flame-resistant containers/cabinets.
- Incompatible materials would be segregated.
- Appropriate firefighting and/or spill response equipment would be available.
- The applicable training, inspection, reporting, preparedness, spill prevention, contingency planning, and emergency procedures required by RCRA and ADEC Division of Spill Prevention and Response would be implemented.
- Containers of sodium cyanide would be managed in accordance with the International Cyanide Management (ICM) Code.

2.8 Procedures for Emptying Containers

An empty container is a non-hazardous waste provided it has been emptied according to the procedures described below. Residues from emptying the containers must be managed according to the hazard classification.

1. A container holding a *compressed gas* is considered empty when the pressure in the container approaches atmospheric pressure.
2. Containers that held an *acutely hazardous waste* [P-code wastes in 40 CFR § 261.7 (b)(3)], such as cyanide, are considered empty when:
 - a. the container or inner liner has been triple-rinsed using a solvent capable of removing the material;
 - b. the container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or
 - c. in the case of a container, equipped with an inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container has been removed.

3. Containers that held *hazardous waste* are considered empty when:
 - a. all wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating; and
 - b. no more than 1 inch (2.5 cm) of residue remain on the bottom of the container or inner liner; or
 - c. no more than 3% by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 119 gallons (450 L) in size.
4. The proposed Donlin Gold project would apply the applicable standards for a container that held hazardous waste and for all containers that held non-hazardous waste (other than compressed gas cylinder and aerosol cans that are regulated under other provisions). In addition, 55-gallon drums that would be returned to the vendor would be emptied to less than 1% residue.
5. Containers that have been appropriately emptied would be indicated by applying an empty label or tag.
6. All plugs or caps would be replaced to seal inlets/outlets from water or snow.
7. Marking, labeling, or placarding required by the U.S. Department of Transportation's (USDOT's) hazardous materials regulations would be retained until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.
8. Until containers have been appropriately emptied and indicated as empty, they would be kept in secondary containment where required and the labels, markings and placards would be left in place.

2.9 Onsite Waste Management

Solid waste management facilities at the proposed Donlin Gold project would include inert solid waste landfills, TSF and WRF. These key waste management areas would be regulated by ADEC under a waste management permit. The TSF and WRF will be managed as described in SRK 2016a and 2016b, respectively. The inert solid waste landfills are managed as discussed in the following sections.

2.9.1 Inert Landfill Operation

Solid waste inert landfills would be constructed at the mine site for the disposal of inert, non-hazardous solid waste. These landfills would be permitted by the ADEC in accordance with 18 AAC 60. The landfills would be constructed as trenches within the WRF.

Weekly visual inspections would be made to verify landfill trenches are operated properly and in compliance with the Donlin Gold construction and demolition debris landfill. Landfill locations would be surveyed and recorded. Table 2-1 summarizes the operational and inspection requirements for a solid waste landfill.

In general, inert landfills would be designed and operated to keep runoff from outside the landfill area separate from the solid wastes and in such a way as to prevent the attraction of wildlife. Wastes would be stored in suitable containers prior to incineration and/or disposal in the landfills. When needed an appropriate intermediate cover of soil or rock would be applied

to all waste placed in the landfills. Windblown litter and littered refuse from the areas around the landfill would be collected and returned to the landfill for disposal. Visual monitoring would be conducted on the facilities to verify compliance with the provisions of 18 AAC 60. The locations of the landfill areas would be surveyed annually. Landfills would be closed and reclaimed in accordance with the requirements of ADEC.

Table 2-1: Operational and Inspection Requirements for Solid Waste Landfills

Frequency	Action
Weekly	Landfill inspection
Monthly	Site-wide litter cleanup
Spring	Cover solid waste with 0.5 ft (0.15 m) of soil
Fall	Cover solid waste with 0.5 ft (0.15 m) of soil
Annually	Submit report to ADEC by January 31 st of the following year
As Needed	Cover light debris that can be windblown within 24 hours of placement in landfill
As Needed	Control vectors (insects, rodents)

Inert, general mine refuse (e.g., packaging, non-recyclable empty containers, non-putrescible refuse, etc.) would be placed directly into the permitted onsite landfill trenches in designated sections of the WRF. Inert solid waste from the permanent camp, airport, and Jungjuk Port facility would be trucked to the mine site for disposal in the WRF inert solid waste landfills as needed. Putrescibles would be incinerated and wooden pallets, paper, cardboard, and wood scrap would be burned in a burn pit or incinerator. Residues from the incinerator or burn pit would be disposed of in the landfill. Unusable, small vehicle tires that cannot be returned to the vendor would be disposed of in the landfill. All heavy equipment (loader, truck, graders, etc.) tires would be buried in designated areas at the WRF.

The surface surrounding the open landfill trenches would be graded to prevent precipitation from ponding or draining into the trench. A light cover of approximately 6 inches (15 cm) would be placed over debris that can be windblown as needed. An intermediate cover of approximately 12 inches (30.5 cm) of soil or rock would be applied to portions of the landfill that are inactive for 90 days or more. Once a landfill trench is filled to within 4 ft (1.2 m) of the surface, it would be covered with a layer of rock. By the nature of the WRF construction, another layer of rock, a minimum 20 ft (6 m) thick, would be placed over the filled trenches when the next lift is placed on the WRF. The additional cover would minimize the chance of water percolating through the rock material and into the refuse trench. Landfill trenches closed during final reclamation would have a minimum of 24 inches (61 cm) of cover material placed, as required by ADEC.

2.9.2 Inert Landfill Monitoring and Reporting

Because materials disposed of within the landfill trenches are inert, the potential for leachate is minimal. Furthermore, landfill trenches would be a minimum of 100 ft (30 m) from any surface water body and greater than 200 ft (61 m) from drinking water sources. Surface water runoff would be diverted away or around landfill trenches to minimize infiltration. Additionally, trench bottoms would be located a minimum of 10 ft (3 m) above the existing or expected

future groundwater table. Consequently, no special groundwater or surface water monitoring is currently planned. Visual monitoring in the form of weekly inspections, as summarized in Section 2.9.1, would be conducted and documented.

2.9.3 Inert Landfill Reporting and Record Keeping

Regular reporting, as required by the ADEC waste management permit, would be provided on waste management activities and results of environmental monitoring. An operating record would be maintained on site, as specified in 18 AAC 60.

2.10 Materials to be managed off Site

In addition to liquid wastes and hazardous wastes, certain materials would be shipped off site for recycling or disposal, including some of the recyclable materials listed in Section 2.5. These materials would be segregated, as described in Section 2.6, and ultimately delivered to the mine site warehouse for processing as described below. The warehouse would be located at the plant site truck shop.

- All materials received at the warehouse would be verified for appropriate labeling (e.g., type of material, date waste generated, etc.).
- Containers would be assigned a unique container number and entered into an inventory.
- Materials characterization testing would be conducted if required.
- The material would be placed in an appropriate accumulation area (e.g., hazardous waste accumulation area).
- The material would be shipped to an appropriate recycling and/or disposal facility depending on the type of material (e.g., solid or hazardous waste). All hazardous wastes would be shipped to appropriate facilities (e.g., Treatment Storage and Disposal Facility [TSDF]).
- All materials would be shipped in accordance with the applicable regulations, including those mandated by the USDOT Pipeline and Hazardous Materials Safety Administration (hazardous materials regulations), RCRA, International Civil Aviation Organization (ICAO), International Air Transport Association (IATA), and International Maritime Dangerous Goods (IMDG) code.

2.11 Hazardous Waste Management

The requirements for managing hazardous waste are found in the RCRA regulations 40 CFR Parts 260 to 282. The specific requirements that apply to a particular waste depend mainly on the classification of the waste generated and the generator status, which is based on the quantity of waste generated in a month and the total quantity of waste accumulated on site at any one time. There are three categories of generator status:

1. conditionally exempt small quantity generator (CESQG) – generates 220 lb (100 kg) or less of hazardous waste per month and the quantity of waste accumulated on site does not exceed 2,204 lb (1,000 kg)⁴.

⁴ Additional storage limits for acute hazardous waste and residues or materials resulting from the spill of an acute hazardous waste are shown in Table 2-1.

2. small quantity generator (SQG) – generates greater than 220 lb (100 kg) but less than 2,204 lb (1,000 kg) of hazardous waste in a calendar month, and the quantity of waste accumulated on site does not exceed 13,228 lb (6,000 kg).
3. large quantity generator (LQG) – generates 2,204 lb (1,000 kg) or more of hazardous waste in a month.

The proposed Donlin Gold project would maintain an inventory of the volumes of hazardous waste generated each month and the total volume of hazardous waste on site to ascertain its generator status and would comply with the applicable regulations. The regulations that apply to each generator status are outlined in Table 2-2.

2.11.1 Hazardous Waste Determinations

As required by 40 CFR § 262.11, hazardous waste determinations would be made on all solid wastes generated. Determinations would be made by reviewing the regulations, and, if required, testing the waste, or applying generator knowledge.

2.11.2 Hazardous Waste Accumulation

The following procedures would be followed while hazardous wastes are accumulated at the proposed Donlin Gold project:

- In general, hazardous wastes would be accumulated in satellite accumulation areas. Once containers become full (55 gallons or less), they would be delivered to a hazardous waste accumulation area within three days of becoming full.
- Hazardous wastes not accumulated in a satellite accumulation area, such as wastes generated infrequently, would be delivered to the hazardous waste accumulation area immediately.
- All wastes would be shipped off site within the required timeframe from their accumulation start date based on the generator status during the month the waste was generated.
- All containers would be appropriately labeled as described in Section 2.7 and managed according to the applicable regulations (Table 2-2).

2.11.3 Hazardous Waste Reporting and Record Keeping

Regular reporting, as required by RCRA, would be provided on hazardous waste management activities and results of characterization and environmental monitoring.

Table 2-2: Applicable Regulations for Hazardous Waste Generators

	CESQG	SQG	LQG
Quantity Limits	≤ 220 lb (100 kg)/month ≤ 2.2 lb (1 kg)/month of acute hazardous waste ≤ 220 lb (100 kg)/ month of acute spill residue or soil	Between 220 – 2,204 lb (100 - 1,000 kg)/month	≥ 2,204 lb (1,000 kg) / month > 2.2 lb (1 kg)/ month of acute hazardous waste > 220 lb (100 kg)/month of acute spill residue or soil
EPA ID Number	Not required	Required	Required
Onsite Accumulation Quantity	≤ 2,204 lb (1,000 kg) ≤ 2.2 lb (1 kg) acute ≤ 220 lb (100 kg) of acute spill residue or soil	≤ 13,228 lb (6,000 kg)	No limit
Accumulation Time Limits	None	≤180 days or ≤270 days (if distance greater than 200 miles from TSD facility)	≤90 days
Storage Requirements	None	Basic requirements with technical standards for tanks or containers	Full compliance for management of tanks, containers, drip pads, or containment buildings
Waste Must be Shipped to	State-approved or RCRA permitted/interim status facility	RCRA permitted/interim status facility	RCRA permitted/interim status facility
Manifest	Not required	Required	Required
Biennial Report	Not required	Not required	Required
Personnel Training	Not required	Basic training required	Required
Contingency Plan	Not required	Basic plan required	Full plan required
Emergency Procedures	Not required	Required	Full plan required
USDOT Transport Requirements	Yes (if required by USDOT)	Yes	Yes

Source: EPA website, <http://www.epa.gov/osw/hazard/generation/summary.htm>

2.11.4 Satellite Accumulation Areas

Up to 55 gallons of hazardous waste, or 1 quart of acutely hazardous waste, can be accumulated in satellite accumulation areas, provided the requirements of 40 CFR § 262.34(c) are met. Containers must be at or near the point of generation of the wastes; under the control of the operator of the process generating the waste; in good condition; made of or lined with materials that are compatible with the waste; kept closed at all times (except when adding/removing waste); opened, handled, and stored in a manner that prevents ruptures or leaks; and labeled with the words, “Hazardous Waste,” or a description of the contents. This allows the accumulation of waste without a time limit until a container becomes full. Once a container in a satellite accumulation area becomes full, the date must be written on the label. Full containers would then be transferred to a central hazardous waste accumulation area within three days of becoming full.

2.11.5 Shipments of Hazardous Waste

Hazardous wastes would be shipped off site to appropriate facilities in accordance with the applicable USDOT requirements. Additional requirements would apply depending on the mode of shipment, as mandated by the ICAO, IATA, and IMDG code. Shipments will be accompanied by a hazardous waste manifest and the appropriate land disposal restriction (LDR) notification and certification forms where applicable.

2.12 Universal Waste Management

The universal waste regulations (40 CFR § 273) are streamlined hazardous waste management regulations that can be applied to the management of batteries, pesticides, mercury-containing equipment, and lamps. Generators of these wastes can choose to manage them as universal waste rather than under the more comprehensive hazardous waste requirements. The intent of the universal waste regulations is to promote and facilitate the recycling and proper handling of these widely generated hazardous wastes.

The main types of universal wastes likely to be generated at the proposed Donlin Gold project include batteries, mercury-containing equipment, and lamps. It is estimated that the proposed Donlin Gold project would be a small quantity handler of universal waste, meaning less than 13,228 lbs (6,000 kg) of universal waste would be accumulated on site at any time.

Universal waste would be managed in accordance with the regulations at 40 CFR § 273. This includes accumulation in appropriate containers that are labeled as specified in 40 CFR § 273.14, using a method that clearly demonstrates the length of time the universal waste is accumulated from the date it became a waste or was received.

The proposed Donlin Gold project would train all employees who handle or have responsibility for managing universal waste in the proper handling and emergency procedures appropriate to the type(s) of universal waste handled.

All releases of universal waste and other residues from universal wastes would be contained. A determination would be made as to whether any material resulting from the release is hazardous waste, and if so, it would be managed in compliance with all applicable requirements of 40 CFR Parts 260 - 272.

Universal waste would be sent off site to another universal waste handler or a permitted destination facility⁵, or a foreign destination (consistent with the export requirements of 40 CFR § 273) within one year of the accumulation start date. Universal wastes meeting the definition of a hazardous material under the USDOT regulations would be packaged, labeled, marked, and placarded, and appropriate shipping papers would be prepared according to the applicable USDOT regulations under 49 CFR Parts 171 - 180.

⁵ Destination facility means a facility that treats, disposes of, or recycles a particular category of Universal Waste, with the exception of the management activities described in 40 CFR § 273.13 (a) and (c) and 40 CFR § 273.33 (a) and (c).

2.13 Used Oil Management

Used oil is defined as “any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities” and is regulated under RCRA as described in 40 CFR § 279. Mixing used oil with other hazardous wastes may render the mixture a hazardous waste, in which case, the mixture could no longer be managed as used oil. Mixtures of used oil are regulated as follows:

- A mixture of used oil and a listed hazardous waste is regulated as *hazardous waste*.
- A mixture of used oil and a characteristic hazardous waste, or a listed hazardous waste that is listed solely because it exhibits one or more hazardous waste characteristic, is regulated as:
 - *hazardous waste* if the mixture exhibits any characteristic of hazardous waste; and
 - *used oil* if the mixture does not exhibit a characteristic of hazardous waste.
- Note that used oil containing more than *1,000 ppm of halogens* is presumed to be *hazardous waste* (referred to as the “rebuttable presumption for used oil.”). This presumption can be rebutted if the generator can prove the used oil was not mixed with hazardous waste.

Used oil generated at the proposed Donlin Gold project, which meets the requirements to be regulated as used oil, would be used in production of ANFO explosives, burned for energy recovery in space heaters and process boilers when possible, or shipped off site for recycling. Used oil that must be managed as hazardous waste would be shipped off site to an appropriate facility for proper handling and disposal.

The general requirements for managing used oil include:

- Records of used oil used on site and shipped off site would be produced, as specified in 40 CFR § 279.
- Containers would be in good condition and labeled with the words “Used Oil”.
- Any records produced as part of the management of used oil would be kept on file for at least three years.
- Containers would be provided with secondary containment as required under applicable regulations (40 CFR § 112, 40 CFR § 279 Subpart D, and 18 AAC 75).

2.14 Employee Training

Employees handling hazardous materials would be trained in the appropriate and safe handling of these materials as required by OSHA, MSHA, RCRA, and/or USDOT based on the duties of the employees.

This includes:

- Employees of SQGs and LQGs involved in handling hazardous wastes must be trained on proper waste handling and emergency procedures relevant to their responsibilities during normal facility operations and emergencies.

- Employees of small quantity handlers of universal waste must be trained on proper handling and emergency response procedures appropriate for the type of universal waste handled.
- Personnel involved in shipping hazardous materials and wastes, including preparing packages, preparing/signing/reviewing manifests, loading/unloading materials, and transporting materials, would complete the appropriate USDOT hazardous materials (HAZMAT) transportation training (49 CFR § 172.702).
- Employees handling hazardous materials would be trained according to the hazard communication standard under OSHA/MSHA.
- Employees would be required to complete the mandatory 40-hour new miner training and annual 8-hour refresher course required under MSHA.

Records of training would be maintained on file according to the applicable regulations.

2.15 Handling and Storage of Hazardous Materials

Hazardous materials would be handled and stored in the workplace according to the U.S. Department of Labor OSHA and MSHA hazard communication standards, which require the following:

- The preparation and implementation of a written hazard communication program.
- Proper labeling of all hazardous materials, including the hazard classification.
- Retention of marking, labeling, or placarding required by the USDOT's hazardous materials regulations until the packaging is sufficiently cleaned of residue and purged of vapors to remove any potential hazards.
- SDSs readily available for all hazardous materials in the work place.
- Training of personnel handling hazardous materials.
- Inspections to check for compliance with the standards.

All materials would be stored based on the hazard classifications identified in their SDSs and in compliance with the applicable OSHA or MSHA regulations. Incompatible materials, e.g., cyanides and acids, would be segregated accordingly. Fuel and explosives would be stored in separate, designated areas, segregated from other chemicals.

Additionally, secondary containment would be provided as required by the federal Oil Pollution Prevention regulations in 40 CFR § 112 and the State of Alaska Oil and Other Hazardous Substances Pollution Control regulations in 18 AAC 75. Hazardous waste would be handled and stored according to RCRA regulations.

Requirements for the hazardous waste accumulation areas are summarized in Appendix A.

2.16 Specific Hazardous Materials Handling Requirements

Certain hazardous materials require special handling, including the key materials discussed below. Additionally, co-product mercury and mercury-containing materials would be managed in accordance with a mercury management plan (forthcoming) and all applicable regulations.

2.16.1 Explosives

Explosives would be stored and handled according to the MSHA regulations contained in 30 CFR § 56. Explosives would also be handled and transported according to the regulations of the Bureau of Alcohol, Tobacco, Firearms, and Explosives; USDOT Pipeline and Hazardous Materials Safety Administration; and the U.S. Coast Guard (USCG). Separate storage bins, or silos, would be constructed for emulsion and ANFO. All detonators and bagged products would be stored in an explosives magazine meeting all applicable federal and state safety and security requirements.

Charges and detonators would be shipped separately under the control of the explosives supplier. Transport companies that handle these cargoes would have the appropriate certification and licenses. Although components used to produce the blasting agents (ammonium nitrate and emulsifiers) require special handling, as detailed in 33 CFR § 126.28, they would be shipped along with the rest of the general cargo destined for the mine site.

2.16.2 Sodium Cyanide

Sodium cyanide handling and storage practices and processes would follow the ICM Code, as developed by the International Cyanide Management Institute, in addition to all applicable laws and regulations. The ICM Code is a voluntary initiative established for the gold mining industry, as well as for the producers and transporters of cyanide used in the industry. The intent of the ICM Code is to complement an operation's existing regulatory requirements.

The ICM Code covers the production, transport, storage, and use of cyanide and the decommissioning of cyanide facilities. It also includes requirements related to financial assurance, accident prevention, emergency response, training, public reporting, stakeholder involvement, and verification procedures. The ICM Code comprises two major elements: principles that broadly state commitments to manage cyanide in a responsible manner; and the associated standards of practice, which identify performance goals and objectives needed to comply with the principles. Companies that wish to receive certification under the ICM Code must undergo an independent third-party verification audit. Donlin Gold has committed to becoming certified under the ICM Code.

The key principles comprised in the ICM Code are as follows. Each of these principles has a number of associated standards of practice:

1. Encourage responsible cyanide manufacturing by purchasing from manufacturers who operate in a safe and environmentally protective manner.
2. Protect communities and the environment during cyanide transport.
3. Protect workers and the environment during cyanide handling and storage.
4. Manage cyanide process solutions and waste streams to protect human health and the environment.
5. Protect communities and the environment from cyanide through development and implementation of decommissioning plans for cyanide facilities.
6. Protect workers' health and safety from exposure to cyanide.

7. Protect communities and the environment through the development of emergency response strategies and capabilities.
8. Train workers and emergency response personnel to manage cyanide in a safe and environmentally protective manner.
9. Engage in public consultation and disclosure.

Some of the specific methods for handling sodium cyanide that would be followed at the proposed Donlin Gold project include, but are not limited to:

- Sodium cyanide would be shipped from the manufacturer to the mine site as solid briquettes in 24 st (22 t) International Standards Organization (ISO) stainless steel shipping containers by an experienced carrier. The cylindrical containers would be permanently and prominently marked with appropriate warning labels and hazard markings.
- The carrier would have a contract with a certified and licensed hazardous materials response and cleanup company within Alaska.
- All marine carriers and Donlin Gold staff involved in handling sodium cyanide would be trained in safe handling and spill response procedures.
- Personal protective equipment (PPE) would be available onboard each tug towing sodium cyanide, at each port where the product is stored, and for the truck drivers who transport the containers from the Jungjuk Port to the mine.
- A secure storage area with secondary containment would be constructed at the mine site, which would include an enclosed structure for the storage of cyanide.

2.17 Inventory of Hazardous Materials

An inventory of all hazardous materials used and stored at the site would be maintained for the proposed Donlin Gold project. This would include the quantities of materials used and stored annually, locations of storage, type of storage, etc.

Inventories of the locations of hazardous waste, universal waste, and satellite accumulation areas would also be maintained, in addition to the locations of lead-acid battery accumulation areas.

2.18 Safety Data Sheets

SDSs for each hazardous material would be maintained on site, kept up-to-date, and made readily available to employees and contractors employed at the proposed Donlin Gold project.

2.19 Inspections

Inspections of hazardous materials would be conducted as required to verify hazardous materials are handled appropriately, in compliance with all applicable regulations, and in accordance with the inspection requirements of applicable permits and/or plans.

2.20 Reporting Requirements

The purchase, use, and release of certain hazardous substances require reporting under a variety of regulations, including:

- Release of hazardous substances must be reported as outlined in Section 4.1.
- EPCRA requirements of regulated facilities include:
 - emergency planning and notification, including notification of releases of hazardous substances to the Local Emergency Planning Committee (LEPC) (currently there is no LEPC active within the project area, anticipated to be established as a result of Donlin Gold activities) and State Emergency Response Commission (SERC).
 - hazardous chemical reporting through the provision of SDSs and/or inventories of hazardous chemicals (e.g., Tier II Inventory) to the LEPC, SERC, and/or fire department having jurisdiction over the facility.
 - information on toxic chemical releases and waste management activities reported annually to the EPA through the Toxic Release Inventory (TRI) program.
- Inventory update reporting (IUR) under TSCA requires reporting of manufacturing and/or importing of certain substances at or above a threshold quantity.
- The Department of Homeland Security (DHS) Chemical Facility Anti-Terrorism Standards (CFATS) require that facilities that possess any chemical on the CFATS Appendix A: DHS Chemicals of Interest List complete at Top-Screen assessment to determine if they meet the CFATS criteria for high-risk chemical facilities.

3.0 SPECIFIC WASTE HANDLING METHODS

The following sections describe the specific management methods that would be followed for waste streams and other materials generated at the proposed Donlin Gold project. Adherence to these methods by employees and contractors is essential in order to operate in compliance with all applicable regulations and permits and to protect the safety of employees, contractors, and the environment.

This IWMP will be updated as needed, e.g., as new waste streams are added, due to changes in procedures or processes, or in response to modifications to the applicable regulations.

3.1 Absorbents/Floor Dry

Absorbents, including absorbent pads, socks and booms; floor dry; and floor sweep are commonly used to collect spilled products. The disposal of absorbents is dictated by the material collected on the absorbent:

- Absorbents used to collect petroleum products are considered non-hazardous waste once no free liquid can drain from the absorbent. These absorbents would be incinerated on site. The collected liquid would be managed as used oil.
- Absorbents managed as hazardous waste are those contaminated with a material classified as hazardous waste if disposed of. These absorbents would be shipped off site to an appropriate facility (e.g. TSDF). Any collected liquid that cannot be used for its original purpose would also be shipped off site to an appropriate facility.
- Absorbents managed as non-hazardous waste are those contaminated with a material classified as a non-hazardous waste if disposed of. These absorbents would be incinerated or landfilled on site. Collected liquid that cannot be reused or managed on site would be shipped off site to an appropriate facility.

3.2 Antifreeze/Coolant

Ethylene glycol and propylene glycol are commonly referred to as antifreeze or coolants. Ethylene glycol is typically used as a coolant in equipment such as vehicles and generators. Propylene glycol is commonly used in liquid cooling systems such as heat exchangers. Both ethylene and propylene glycol can be used as deicing fluid for airplanes. Glycol would be managed as follows:

- Used glycol would be recycled whenever possible. Depending on the specifications of the equipment and the type of glycol used, glycol may be reused through the addition of additives or a combination of a glycol recycling unit and additives.
- Glycol that cannot be recycled would be shipped off site for management. Donlin Gold would endeavor to find an offsite facility that can recycle the material whenever possible. Glycol that is found to be a hazardous waste would be shipped to an appropriate facility.
- Propylene glycol and ethylene glycol would be managed separately due to their differences in properties and applications.
- Filters from glycol recycling units would be tested to determine if they are a hazardous waste. If they are not a hazardous waste, they would be incinerated or landfilled on site.

If they are a hazardous waste, they would be shipped off site for disposal at an appropriate facility.

- Glycol-based antifreeze/coolant is a hazardous substance and State of Alaska reporting requirements will be followed in the event of a spill.

3.3 Asbestos and Lead Based Paint

Donlin Gold facilities would be all new construction and free from any asbestos and lead based paint. If over the course of the mine life facilities constructed off site were to be relocated to the project, the presence of asbestos or lead based paint would be determined prior to any demolition or renovation activities. Certified and trained asbestos and lead paint abatement contractors would be used for any required removal and disposal activities.

Asbestos removal and disposal would be in compliance with 40 CFR § 61, Subpart M. Any asbestos containing material purchased and brought to site would be documented and tracked.

3.4 Batteries

Batteries that may be used on site for the proposed Donlin Gold project include alkaline, lithium, nickel cadmium, nickel metal hydride, and lead acid batteries. *Non-hazardous waste* batteries would be shipped off site for recycling or landfilled on site. Hazardous batteries would be managed as universal waste and shipped off site for recycling. Lead-acid batteries would be shipped off site for reclamation. A brief description of the battery types and management methods is provided below:

- Alkaline batteries are commonly used disposable batteries. Alkaline batteries would be managed as non-hazardous waste.
- There are several types of lithium batteries, including rechargeable lithium-ion and lithium-polymer (batteries and disposable lithium batteries such as lithium sulfur dioxide batteries. Lithium batteries would be managed as universal waste.
- Nickel metal hydride (NiMH) batteries are commonly used, rechargeable batteries. NiMH batteries would be managed as non-hazardous waste.
- Nickel cadmium batteries, also known as NiCad batteries, are rechargeable batteries. NiCad batteries would be managed as universal waste.
- Lead-acid batteries are used in vehicles and equipment; smaller, sealed lead-acid batteries are used in miner lights. Lead-acid batteries would be managed as exempt from hazardous waste regulations if reclaimed.

3.5 Building Construction and Demolition Materials

Construction refuse from initial or subsequent facility construction would be assessed and appropriately managed for onsite disposal, offsite shipment for disposal, or recycling.

A complete survey of any building or structure to be demolished would be made prior to demolition to assess the potential environmental concerns and to determine appropriate

management methods for any wastes or recyclable materials generated. If removal of asbestos is necessary, the procedures in Section 3.3 would be followed.

3.6 Camp Waste

Household-type waste generated from employees and contractors at the mine site camp facilities, including employee/contractor rooms, cafeteria, and kitchen would be incinerated to prevent putrescible wastes from being placed in the onsite landfills. This includes:

- food scraps
- cooking oil and grease from the kitchen
- Other industrial-type wastes generated by maintenance and housekeeping activities would be managed according to the procedures for the specific waste provided in this IWMP
- Aerosol cans would be punctured at an aerosol can puncturing unit prior to disposal (Section 3.8.3)
- Plastics, paper, glass, and soft drink cans (aluminum) would be placed in designated recycling bins located at the facility for recycling off site.

3.7 Chemicals / Reagents

The requirements for handling chemicals and reagents that have spilled or can no longer be used for their intended purpose varies depending on the type of chemical or reagent.

As an example the following materials used in the assay lab are considered non-hazardous waste and shall be disposed of at an onsite landfill:

- borax
- silica sand
- soda ash.

The chemicals/reagents listed below are just an example of product that require special handling. Every effort will be made to return these chemicals to the process to be used for their original purpose. If this is not possible, the chemicals will be shipped off site to an appropriate facility.

- sodium nitrate (refinery)
- ammonium bisulfite (detox)
- ammonium nitrate (mine)
- cupric sulfate (detox)
- potassium amyl xanthate (process plant)
- methyl isobutyl carbinol (MIBC) and F549 (process plant)
- nitric acid (process plant)
- lime (calcium oxide) (process plant)

- sodium cyanide (CIL)
- active carbon (CIL)
- sodium hydroxide (process plant)
- mercury suppressant (process plant)
- flocculent (process plant)
- sulfur (detox)
- copper sulfate (detox)
- fluxes (refinery)
- water-softening and anti-scalant agents (process plant).

Lime pebbles are used in mineral processing. All spilled lime pebbles will be cleaned and returned to the process.

Any spilled or expired chemicals, reagents or wastes are managed on a case by case basis and according to both federal and state waste regulations.

3.8 Containers / Packaging

All containers and packaging must be emptied appropriately prior to disposal, reuse on site, or return to the vendor, according to the requirements in Section 2.8. Appropriately emptied containers will be indicated by applying an “empty” label or tag. *Until containers have been appropriately emptied and indicated as empty*, they would be kept in secondary containment where required and any original labels, markings, and placards would be left in place.

3.8.1 Empty Drums

Drums that contained acutely hazardous waste would be emptied according to provisions identified in Section 2.8, which requires triple rinsing.

Drums that contained all other hazardous materials would be emptied according to provisions listed in numbers 3 and 4 of Section 2.8, which requires emptying containers according to the RCRA requirements. Additionally, 55-gallon drums returned to the vendor would be emptied to less than 1% residue. Drum plugs or caps would be replaced to seal inlets/outlets from water or snow. Empty drums would be recycled whenever possible by returning them to the vendor.

Drums to be recycled as scrap metal would be crushed prior to shipment off site.

All large, non-recyclable containers (over 5 gallons [19 L]) must be crushed prior to disposal in the landfill. The generator of the empty containers would be responsible for ensuring containers are crushed prior to delivery to the landfill.

3.8.2 Compressed Gas Cylinders

Compressed gas cylinders include those containing oxygen, acetylene, propane, ether, carbon dioxide, argon, and nitrogen. The majority of large cylinders would be returned to the vendor and refilled. Five gallon (19 L) and larger propane cylinders would be refilled on site whenever possible.

Cylinders would be segregated by type and would be managed according to safe handling procedures for compressed gas cylinders, which includes ensuring they are stored upright in a dry, cool, well-ventilated, secure area, protected from the weather, away from combustible materials, and where they will not be knocked over or damaged by passing or falling objects.

Smaller cylinders such as those containing ether, propane, or calibration gases, with the valve inside the top fitting, would be purged of their contents using a cylinder recycling apparatus such as the ProSolv® unit. The purged cylinders can then be recycled as scrap steel.

3.8.3 Aerosol Cans

All aerosol cans would be punctured and drained using aerosol can puncturing units located at designated locations throughout the property.

A puncturing unit like the Aerosolv® brand, or equivalent, would be used. The puncturing device is attached directly to the 2-inch (51 mm) bung of a 30-gallon (136 L) can. Cans are punctured with a non-sparking puncture pin, and the liquid is collected in the drum. A filter is attached to the ¾-inch (19 mm) bung on the drum to collect volatile organic compounds.

The punctured and drained aerosol cans would be considered non-hazardous waste and landfilled.

Residues and filters from puncturing aerosol cans would be tested to determine if they are hazardous waste. Typically, these wastes must be managed as hazardous wastes and would be shipped to an appropriate facility.

3.9 Contaminated Soil

The following sections describe procedures for handling specific types of contaminated soil.

3.9.1 Cyanide-Contaminated Soil

Sodium cyanide is a reagent used for gold recovery. It is a corrosive and poisonous solid and is very hazardous in the case of skin or eye contact, ingestion, or inhalation.

Sodium cyanide is classified as an extremely hazardous substance (EHS) by the EPA and is an acute hazardous waste if disposed.

Cyanide-contaminated soil would be reintroduced into the appropriate process stream or placed within the TSF, as allowed under the waste management permit.

Soil samples would be collected according to the requirements described in Appendix B.

3.9.2 Petroleum-Contaminated Soil

Petroleum-contaminated soil would be managed on site and is considered a *non-hazardous waste*.

The management of soil contaminated with petroleum products (e.g., oil) would depend on whether the spill occurs inside or outside the open pit area, as described below:

- Material from the pit contaminated with petroleum would not be allowed to enter the process circuit because it can interfere with the carbon-in-leach (CIL) process. As a result, petroleum-contaminated material in the pit would be removed along with the waste rock and placed in the WRF as specified in the ADEC Solid Waste Management Permit.
- Contaminated soil generated outside the pit would be removed and placed in the WRF or treated on site. The proposed Donlin Gold project would include an incinerator capable of treating contaminated soil.

Soil samples would be collected depending on the size and location of the spill and based on regulatory guidance to verify the spill area has been cleaned up according to the appropriate ADEC soil cleanup levels (18 AAC 75).

3.9.3 Caustic / Acid Spills Outside the Process Plant and Containment

Caustic compounds are also known as bases or alkaline compounds and have a pH greater than 7. Examples include potassium hydroxide, ammonia, and sodium hydroxide.

Acidic compounds have a pH of less than 7. Examples include sulfuric, hydrochloric and nitric acid (inorganic) or acetic and formic acid (organic).

Where required, caustic and acid spills would be neutralized on site and managed as *non-hazardous waste* either in situ or by removing the contaminated soil and subsequently neutralizing it as follows⁶:

- Caustic spills – neutralize with a weak acid, preferably with a product specifically designed to neutralize caustic spills (e.g., Spill-X-C®).
- Acid spills – neutralize with a weak base, preferably with a product specifically designed to neutralize acid spills (e.g., Spill-X-A®).
- Neutralizing caustic or acid spills can produce a violent reaction; therefore, weak neutralizers must be used.

Confirmation samples would be taken when required. For in-situ remediation, if the material has been appropriately neutralized, it would be left in place. Otherwise, the material would be removed and neutralized, then placed in the TSF.

⁶ For materials meeting the characteristic of corrosivity (40 CFR §261.22), these activities would be conducted according to the RCRA requirements for an elementary neutralization unit (40 CFR 260.10)

3.10 Filters

There are a number of filters that could be generated, including those from vehicles, buildings, baghouses, glycol recycling units, aerosol can puncturing devices, assay lab, refinery, etc. In general, filters classified as non-hazardous waste would be landfilled or incinerated on-site. Filters classified as hazardous waste would be shipped off site for recycling.

Filters other than oil filters collected throughout the facilities would be managed as follows:

- Filters from refinery baghouses may contain silver and arsenic and would be returned to the mineral processing circuit to recover silver.
- Baghouse filters from induction furnaces would be shipped off site as hazardous waste (possible mercury and silver content).
- Filters from the fire assay baghouse may contain lead and would be shipped off site as hazardous waste.
- Filters from glycol recycling units would likely be non-hazardous waste, in which case, they would be incinerated or landfilled on site.
- Filters from aerosol can puncturing units are typically hazardous waste and would be managed as described in Section 3.8.3.

Oil filters, including lubricating oil filters and fuel filters, would be managed as follows:

- Used oil filters include oil filters from vehicles or equipment and fuel filters from diesel equipment. Used oil filters would be managed as used oil until appropriately gravity hot-drained, and kept in containers marked "Used Oil."
- They are considered exempt from hazardous waste regulations if they are gravity hot-drained according to one of the methods described below and if they are non-terne plated:
 - puncturing the filter anti-drain back valve or the filter dome end and hot-draining (EPA recommends minimum hot-drain time of 12 hours)
 - hot-draining and crushing
 - dismantling and hot-draining
- Note that hot-draining means the oil or diesel must be near engine-operating temperature and above room temperature 64° F - 73° F (20° C - 25° C).
- Once appropriately gravity hot-drained, the used oil filters would be incinerated or landfilled. Drained oil or diesel would be collected and managed as used oil. Containers holding drained oil or diesel would be marked "Used Oil."
- Used oil filters that cannot be managed according to the above procedures would be shipped off site for handling.

3.11 Food Waste (Putrescibles)

To prevent attraction of wildlife, food waste would be incinerated on site and not disposed of in onsite landfills. Inert ash from incineration would be placed in the onsite landfills.

Food wastes would be placed in trash cans designated for food waste in the cafeteria and break rooms. All trash bags containing putrescibles would be placed in an incinerator dumpster. Incinerator dumpsters would be kept closed to prevent the attraction of wildlife.

3.12 Assay Lab Waste

Wastes generated from the assay lab that contain lead would be shipped off site as hazardous waste. Non-hazardous wastes would be landfilled. Other waste would be handled as described below:

- Assay lab acid waste would be neutralized⁷ and pumped to the process plant.
- Laboratory crucibles, cupels, flux, and slag are typically hazardous waste due to lead and would be shipped off site to an appropriate facility.
- Laboratory cyanide waste would be returned to the process plant.
- Laboratory sample preparation wastes would be returned to the process plant to recover any valuable minerals.
- Fire assay baghouse filters would be managed as hazardous waste and would be shipped off site to an appropriate facility.
- PPE, i.e. gloves, masks, respirator cartridges, etc. would be tested⁸ to determine if they are hazardous. PPE found to be a hazardous waste would be shipped off site to an appropriate facility. Non-hazardous waste PPE would be landfilled on site.

3.13 Light Bulbs/Lamps

Many used bulbs are considered hazardous waste when disposed. They can be managed as universal waste, if intact. Bulbs classified as hazardous waste that are intentionally broken or crushed must be managed as *hazardous waste*. Donlin Gold will look for offsite facilities that recycle bulbs whenever possible.

3.13.1 Hazardous Lamps

Lamps containing mercury include fluorescent bulbs, high-intensity discharge (HID) bulbs, and neon/argon lamps. Examples of HID bulbs include mercury vapor, metal halide, high-pressure sodium bulbs, and blue plasma vehicle headlights. The lamps may be classified as hazardous waste when disposed.

Many lamps contain lead in the solder, which cause them to be classified as hazardous waste when disposed, including incandescent lamps.

⁷ For materials meeting the characteristic of corrosivity (40 CFR §261.22), these activities would be conducted according to the RCRA requirements for an elementary neutralization unit (40 CFR 260.10).

⁸ Testing for the characteristic of toxicity would be conducted according to the Toxicity Characteristic Leaching Procedure (TCLP), EPA test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846.

Used bulbs that are no longer working but are intact are classified as hazardous waste would be managed as universal waste and shipped off site.

Used bulbs classified as hazardous waste that are intentionally broken or crushed would be managed as hazardous waste and shipped off site.

3.13.2 Non-Hazardous Lamps

Low-mercury, fluorescent lamps ("green end cap") and light-emitting diodes (LED) are currently available and classified as non-hazardous waste when disposed. Where fluorescent bulbs are required, Donlin Gold would purchase low-mercury fluorescent bulbs whenever possible. Halogen lamps are also typically non-hazardous waste.

Non-hazardous lamps would either be crushed using a drum top crusher and shipped off site, shipped off site intact for recycling, or landfilled on site.

3.14 Lubricants / Petroleum Products

3.14.1 Brake Fluid

Brake fluid would be managed as used oil and burned for energy recovery or shipped off site for recycling.

3.14.2 Grease

Grease that cannot be used on site would be shipped off site for disposal.

Grease buckets and other containers with less than 3% residue remaining in the container are considered empty and would be crushed and disposed of in the onsite landfill.

Grease-contaminated trash would be disposed of at the onsite landfill or incinerated once any excess grease has been removed.

3.14.3 Used Oil

Used oil management is described in Section 2.13.

3.15 Mineral Processing

Carbon fines from the CIL process would be transported off site for further processing to recover gold.

Refinery baghouse dust would be recycled through the process plant to recover gold.

Refinery baghouse filters would be assayed and if the assay show no precious metals value the filters would be characterized using the toxicity characteristic leaching procedure (TCLP). If determined to be hazardous waste, then the filters would be shipped off site to an appropriate facility. Filters not classified as hazardous waste would be disposed of in the land fill. Refinery slag would be collected and transported to the coarse ore stockpile to be reintroduced into the beneficiation process in order to extract gold.

Elemental mercury captured in the retort furnace emissions controls and sulfur-impregnated carbon from the mercury abatement process would be managed as hazardous waste due to mercury content as identified in the Toxic Substances Control Act (TSCA)⁹ and RCRA 40 CFR §261.44 and shipped off site to an appropriate facility as designated by the Secretary of the U.S. Department of Health and Human Services.

Trash (e.g. roots, woody debris, spent detonating cord, etc.) from the (SAG) semi-autogenous grinding would be collected in a hopper and placed within the inert landfill.

SAG and ball mill cyclone overflow trash would be collected in a hopper and placed within the inert landfill.

Autoclave lead-contaminated waste, including brick and mortar, would be managed as hazardous waste as described in the Mercury Management Plan (in preparation).

3.16 Miscellaneous Materials

All expanded polystyrene products would be landfilled on site. Polystyrene packaging “peanuts” and other small pieces would be placed in boxes or bags prior to disposal to maintain confinement to the landfill or dumpster.

Colorimetric gas detector tubes may be *non-hazardous waste* or *hazardous waste* depending on the type. *Non-hazardous waste* tubes would be landfilled on site. *Hazardous waste* tubes would be shipped off site to an appropriate facility. The manufacturer would provide a letter with general comments on disposal requirements (based on chemical reactants).

Fiberglass insulation would be landfilled on site. Hoses would be drained to the extent they would not drip any previous contents and landfilled on site. Plastic materials would be placed in the onsite landfill.

Rubber products would be placed in the onsite landfill, unless contaminated with product. Contaminated rubber would be evaluated, a waste determination would be made, and the material would be handled accordingly.

3.17 Oily Waste

Oil- or grease-contaminated rags, pads, gloves, or absorbents are not considered used oil. Once the free-flowing used oil has been removed from these materials, they are not considered used oil and would be managed as solid waste as long as they do not exhibit a hazardous waste characteristic. These materials would be incinerated on site. The collected liquid would be managed as used oil.

⁹ Public Law 114-182 0 June 22, 2016, Section 10 (c) TEMPORARY GENERATOR ACCUMULATION. (D) (iv) the generator has obtained an identification number under section 262.12 of title 40, Code of Federal Regulations, and complies with the requirements described in paragraphs (1) through (4) of section 262.34(a) of title 40, Code of Federal Regulations (as in effect on the date of enactment of this subparagraph).

3.18 Paints

Every effort would be made to use paints for their intended purpose rather than dispose of them:

- Water-based, latex or acrylic paint in solid form or painting materials (e.g., rags, brushes, rollers), are non-hazardous waste and would be landfilled on site; paint in liquid form would be shipped off site.
- Oil-based paints in solid form¹⁰, or painting materials, are non-hazardous waste and would be landfilled on site; paint in liquid form is hazardous waste and would be shipped off site.
- Thinners and solvent-based or lead-based paint in liquid or solid form, or painting materials, may be *hazardous waste* and would be characterized and managed appropriately.

3.19 Radioactive Materials

Radioactive materials used on site would include level gauges, scales, analysis equipment and potentially exit signs containing cesium and tritium. These materials will be handled by the Radiation Safety Officer according to the applicable regulations of:

- the U.S. Nuclear Regulatory Commission, which regulates the use of source, byproduct, and special nuclear material under the authority of the U.S. Atomic Energy Act (10 CFR Parts 1 to 171).
- the USDOT regulations, which establish criteria for the safe transport of radioactive materials in the United States (49 CFR Parts 171 to 178).
- the EPA, which regulates the disposal of low-level radioactive material mixed with hazardous waste (40 CFR § 261).

3.20 Rags

Rags would be washed and reused whenever possible. The disposal of rags is dictated by the material on the rag:

- Rags contaminated with petroleum products are considered non-hazardous waste once no free liquid can drain from the rag and would be incinerated or washed on site. Collected oil would be managed as used oil.
- Rags contaminated with other materials would be classified based on the classification of the material used on the rag, if the materials were to become a waste:
 - Rags managed as hazardous waste are those contaminated with a material that is a hazardous waste if disposed. These rags would be shipped off site to an appropriate facility.

¹⁰ Purposely leaving paint containers that contain hazardous waste paints open to dry to render them non-hazardous is not permitted.

- Rags managed as non-hazardous waste are those contaminated with a material that is not a hazardous waste if disposed. Excess liquid would be removed from these rags, and they would be incinerated or disposed in the on-site landfill. Any collected liquid would be managed according to the procedures described in this IWMP for the particular liquid.

3.21 Scrap Metal

Scrap metal includes building materials, empty drums, aluminum soft drink cans, welding rod, compressed gas cylinders, grinding ball chips, mill liners, crusher liners, and copper wire. To the extent practical, the proposed Donlin Gold project would recycle any scrap metal generated at the site. Metal not recycled would be disposed of in the on-site landfill.

3.22 Solvents

Non-hazardous solvents would be primarily used at the proposed Donlin Gold project. Provided they are appropriately managed and not mixed with other wastes or materials, they can be disposed of as non-hazardous waste. The main solvents generated would be those from the parts washers. The solvent is reused and must be periodically replaced. Solvents from parts washers would be sampled and characterized to determine if they are hazardous waste. Sludge from the parts washers also will be sampled and characterized. Parts washer solvents and sludge would be shipped off site to an appropriate facility.

3.23 Tires

Donlin Gold would, to the extent practical, purchase reusable light vehicle tires (<3 ft in diameter) that could be returned to the vendor for credit. Tires that cannot be returned to the vendor would be disposed of on site as non-hazardous waste. Light vehicle tires would be disposed of in the on-site landfill, and all heavy equipment tires would be buried in the WRF.

3.24 Wildlife

Donlin Gold would handle wildlife mortalities in accordance with the procedures identified in the *Monitoring Plan, Volume VIIA*, SRK 2016d.

3.25 Wood, Paper, and Cardboard

Wood, paper, and cardboard products would be disposed of at onsite landfills or burned in a properly designed burn pit or incinerator. Residues from open burning or incineration would be landfilled on site.

4.0 SPILL PREVENTION, RESPONSE, AND REPORTING

The regulations governing spill prevention and response for the proposed Donlin Gold project involve multiple agencies, including ADEC, ADNR, USCG, and EPA.

Table 4-1 provides a list of required oil spill prevention and response plans, the applicable agency with jurisdiction, and the geographical area. The spill prevention and response measures required by the State of Alaska are contained in Donlin Gold's *Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan* (SLR 2012a) and *Vessel Oil Discharge Prevention and Contingency Plan* (SLR 2012b), and as specified in the facility Spill Prevention, Control and Countermeasures (SPCC) plan (to be prepared and implemented prior to storage of oil at the at the facility). In addition to oil, the proposed Donlin Gold project would require the use, storage, transport, and disposal of other hazardous substances. Additional information on spill reporting and response is provided in the *Transportation Plan, Volume VI*, SRK 2016f.

Table 4-1: Oil Spill Prevention and Response Plans

Plan	Application	Jurisdiction	Reference
Marine Transportation Facility Response Plan	Bethel fuel storage/transfer facility Jungjuk fuel storage/transfer facility	USCG	33 CFR 154
Spill Prevention, Control, and Countermeasures (SPCC) Plan and Facility Response Plan	Containers of oil/fuel ≥ 55 gallons Bethel fuel storage/transfer facility Jungjuk fuel storage/transfer facility Fuel trucking from Jungjuk Port to mine site Mine site oil/fuel storage, and facility oil piping and flow lines not regulated by USDOT	EPA	40 CFR 112
Vessel and Barge Oil Spill Response Plan	Vessels and barges	USCG	33 CFR 155
Oil Discharge Prevention and Contingency Plan	Bethel fuel storage/transfer facility Jungjuk fuel storage/ transfer facility Facility piping Vessels and barges Mine site oil/fuel storage	ADEC	18 AAC 75

The spill reporting requirements are summarized in Appendix B. Additional spill reporting notifications may be required depending on the area of the spill, substance spilled, and agreements made between agencies and/or stakeholders and Donlin Gold.

5.0 REFERENCES

SLR International Corp, 2012a. Terminal and Tank Farm Oil Discharge Prevention and Contingency Plan, Donlin Gold Project, August.

SLR International Corp, 2012b. Vessel Oil Discharge Prevention and Contingency Plan, Donlin Gold Project, August.

SRK Consulting, 2016a. Tailings Management Plan, Volume VA, Donlin Gold Project.

SRK Consulting, 2016b. Waste Rock Management Plan, Volume IIIB, Donlin Gold Project.

SRK Consulting, 2016c. Project Description, Volume I, Donlin Gold Project.

SRK Consulting, 2016d. Integrated Waste Management, Monitoring Plan, Volume VIIA, Donlin Gold Project.

SRK Consulting, 2016e. Water Resources Management Plan, Volume II, Donlin Gold Project.

SRK Consulting, 2016f. Transportation Plan, Volume VI, Donlin Gold Project.

Appendix A
Requirement for Hazardous Waste
Accumulation Areas

Requirements for Hazardous Waste Accumulation Areas

RCRA 40 CFR Reference	Description	SQG	LQG
262.34(a)(2)	Containers must be clearly marked with the accumulation start in a way that is visible for inspection.	Yes	Yes
262.34(a)(3)	Containers must be clearly labeled with the words, "Hazardous Waste."	Yes	Yes
265 Subpart C – Preparedness and Prevention			
265.31	Maintenance and Operation of Facility	Yes	Yes
235.32	Required Equipment	Yes	Yes
265.33	Testing and Maintenance of Equipment	Yes	Yes
265.34	Access to Communications or Alarm System	Yes	Yes
265.35	Required Aisle Space	Yes	Yes
265.37	Arrangements with Local Authorities	Yes	Yes
265 Subpart D – Contingency Plan and Emergency Procedures			
265.51	Purpose and Implementation of Contingency Plan	No	Yes
265.52	Content of Contingency Plan	No	Yes
265.53	Copies of Contingency Plan	No	Yes
265.54	Amendment of Contingency Plan	No	Yes
265.55	Emergency Coordinator	See 262.34(d)(5)	Yes
265.56	Emergency Procedures	See 262.34(d)(5)	Yes
265 Subpart I – Use and Management of Containers			
265.171	Condition of Containers	Yes	Yes
265.172	Compatibility of Waste With Container	Yes	Yes
265.173	Management of Containers	Yes	Yes
265.174	Inspections (at least weekly)	Yes	Yes
265.176	Special Requirements for Ignitable or Reactive Waste	No	Yes
265.177	Special Requirements for Incompatible Wastes	Yes	Yes
265.178	Air Emission Standards	No	Yes
265 Subpart AA – Air Emission Standards for Process Vents		No	Yes
265 Subpart BB – Air Emission Standards for Equipment Leaks		No	Yes
265 Subpart CC – Air Emission Standards for Tanks, Surface Impoundments and Containers		No	Yes
265.111	Closure Performance Standard	No	Yes
265.114	Disposal or Decontamination of Equipment, Structures, and Soils	No	Yes
265.16	Personnel Training (includes specific requirements, such as annual refresher and maintenance of training records)	See 262.34(d)(5)	Yes
262.34(d)(5)(i)	Emergency Coordinator on premises or on call responsible for coordinating emergency response measures	Yes	See Subpart D

Requirements for Hazardous Waste Accumulation Areas

RCRA 40 CFR		Description	SQG	LQG
Reference				
262.34(d)(5)(ii)	Posting of Emergency Information		Yes	See Subpart D
262.34(d)(5)(iii)	Personnel Training		Yes	See 265.16
262.34(d)(5)(iv)	Emergency Response Procedures		Yes	See Subpart D

Appendix B
Reporting Criteria for Process Solution and
Oil Spills

PROPOSED DONLIN GOLD PROJECT PROCESS SOLUTION SPILL NOTIFICATION PROCEDURE

Any spill resulting in process solution escaping from the secondary containment systems would be responded to immediately as follows:

1. Notify Security:
 - a. Security would contact the appropriate personnel to immediately shut down or repair the system experiencing the upset.
 - b. Security would contact the designated spill control person.
2. The designated spill control person would notify the appropriate agencies. Due to the liabilities associated with hazardous materials incidents, only personnel who are familiar with the facility components and reporting requirements should contact the regulatory agencies. If the designated contact person or persons are not available or cannot be contacted, the responsibility to report the incident would fall on the superintendent or supervisor in charge.
 - a. Spills at or above the reportable quantity (RQ) (EPA's "List of Lists") for the particular substance spilled requires immediate reporting to the Alaska Department of Environmental Conservation, Spill Prevention and Response (ADEC SPAR) via telephone (907) 268-3063, fax (907) 269-7648, or outside business hours at 1-800-478-9300 and the National Response Center (NRC) at 1-800-424-8802 or through their online reporting system.
 - b. Spills or releases below the RQ require documentation that no surface or groundwater was impacted (through the Process Solution Spill Report):
 - i. All process solution spills containing concentrations of weak acid dissociable cyanide (WAD CN) above the state and federal drinking water standard of 0.2 milligrams per liter (mg/L) are to be reported immediately to the ADEC Division of Air and Water Quality.
 - ii. Solution spills that are at or below 25 mg/L WAD CN are to be summarized in a quarterly spill report to ADEC SPAR.
 - iii. Releases of solution containing greater than 25 mg/L of WAD CN, or a pH greater than 11 pH units, are to be reported to ADEC SPAR within the following time frames:
 - (1) Discharges greater than 55 gallons - report immediately upon knowledge of the discharge.
 - (2) Discharges greater than 10 gallons and less than or equal to 55 gallons – report within 48 hours upon knowledge of the discharge.
 - (3) Discharges greater than 1 gallon and less than or equal to 10 gallons – report in a quarterly spill report.
 - (4) Discharges resulting in accumulations of less than or equal to 1 gallon are to be cleaned up, but do not need to be reported.
 - c. Spills to water or wetlands or those that may affect wildlife or marine life would also be reported to the Alaska Department of Fish & Game (ADF&G) and/or the US Fish & Wildlife Service (FWS) by ADEC.
 - d. Spills occurring on state land are to be reported to the Alaska Department of Natural Resources (ADNR).
 - e. Releases of a RQ of any Extremely Hazardous Substance (EHS) or Comprehensive Environmental Responsibility, CERCLA hazardous substance require reporting to the Local Emergency Planning Committee (LEPC) and State Emergency Response Commission (SERC). (See EPA's "List of Lists" for the reportable substances and associated RQs.)

3. Once a release of process solution has been terminated and any required immediate agency reporting has been made, all pertinent information regarding the spill would be recorded on the Process Solution Spill Report.
4. All liquid, in collectable volumes, remaining outside containment would be pumped into a lined, containment area, pond, or suitable vessel for temporary containment (portable tank).
5. Soil exposed to cyanide solution would be probed to determine the total depth of penetration. Composite soil samples to total depth of contaminated material would be collected and analyzed for WAD CN:
 - a. Contaminated soil would remain in situ if results of analysis from soil samples indicate a WAD CN level of less than 10 ppm.
 - b. Contaminated soil >10 ppm WAD CN in areas difficult to excavate would be neutralized in place with calcium hypochlorite. The area would be resampled and analyzed to verify neutralization.
 - c. Contaminated soil >10 ppm WAD CN, which has not been neutralized, would be excavated and deposited in the TSF.
6. Soil contaminated with other regulated material would be decontaminated or disposed of according to SDS instructions for the particular product.
7. The original Process Solution Spill Report forms documenting the spill, response, and cleanup are to be submitted to Donlin Gold LLC Environmental Services as soon as possible with all the required information.

PROPOSED DONLIN GOLD PROJECT OIL SPILL NOTIFICATION PROCEDURE

Spill notification for the project would involve a number of different agencies depending on the substance and quantity spilled, including the EPA, USCG, National Response Center (NRC), and ADEC, as described below. The following requirements are for hazardous substances other than process solution spills. For spills of oil or non-process water solution, the procedures outlined below would be followed.

- The requirements for reporting spills to ADEC are contained in 18 AAC 75, Article 3:
 - *Any release of a hazardous substance* must be reported as soon as the person has knowledge of the discharge.
 - *Any release of oil to water* must be reported as soon as the person has knowledge of the discharge.
 - *Any release of oil to land* in excess of 55 gallons must be reported as soon as the person has knowledge of the discharge.
 - *Any release of oil to land* in excess of 10 gallons, but 55 gallons or less must be reported within 48 hours after the person has knowledge of the discharge.
 - A written report of any discharges of *oil from 1 to 10 gallons to land* shall be provided on a monthly basis.
 - *Any release of oil in excess of 55 gallons to secondary containment* must be reported within 48 hours after the person has knowledge of the discharge.
- Spills to water, wetlands, or those areas that may affect wildlife or marine life are required to be reported to the Alaska Department of Fish & Game (ADF&G) and/or the U.S. Fish & Wildlife Service (FWS).
- Spills occurring on state land must be reported to the Alaska Department of Natural Resources (ADNR).
- According to the EPCRA regulations in 40 CFR § 355.40, certain releases of a hazardous substance require immediate reporting to the community emergency coordinator for the LEPC of any area likely to be affected by the release and the SERC of any state likely to be affected by the release. In the case of the proposed Donlin Gold project, there is no LEPC currently active within the project area, in which case, reporting would be made to the Alaska SERC. Reporting is required for releases of a reportable quantity (RQ) of any EHS or comprehensive environmental responsibility, CERCLA hazardous substance. (See EPA's "List of Lists" for the reportable substances and associated RQs.)
- Reporting to the EPA is required for any release (other than a federally-permitted release or application of a pesticide) of a hazardous substance in a quantity equal to or exceeding the RQ in a 24-hour period. (See EPA's "List of Lists.") Reporting to the EPA can be accomplished by notifying the National Response Center (NRC).
- The EPA also requires reporting of discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States. This includes discharges of oil that violates applicable water quality standards; cause a film or sheen upon, or discoloration of, the surface of the water or adjoining shorelines; or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. Reporting to the EPA can be accomplished by notifying the NRC.
- Spills to navigable waters must be reported to the USCG, which can be also made through reporting to the NRC, run by the USCG.