

Montana Department of Environmental Quality
Permitting and Compliance Division
Waste and Underground Tank Management Bureau
P.O. Box 200901
Helena, Montana 59620-0901

Final Environmental Assessment

Calumet Montana Refining, LLC
1900 10th Street NE
Great Falls, MT 59404

Legal Location

Northeast ¼ of Section 1, Township 20 North, Range 3 East, in Cascade County, Montana

Purpose of the Environmental Assessment

The Montana Department of Environmental Quality (DEQ) is required under the Montana Environmental Policy Act (MEPA) to conduct an environmental assessment (EA) on the proposed action described in the this document. An EA documents: 1) all reasonable alternatives to DEQ's action; and 2) describes the potential impacts to the human environment resulting from DEQ's action and the reasonable alternatives to that action.

Based on the impact analysis and professional judgment, DEQ makes a decision on the proposed action and summarizes the decision in the EA. If the decision significantly impacts the human environment then a more detailed environmental review, called an environmental impact statement, must be conducted by DEQ.

Public Comment Period

The public including interested citizens, DEQ, Environmental Protection Agency (EPA), other governmental agencies, and the applicant were provided fifteen (15) days to review and comment on the draft EA and proposed action. The comment period extended from January 31, 2015, through February 16, 2015. DEQ did not receive any written comments.

Description of Action

Background Information

Calumet Montana Refining, LLC (CMR) is an active petroleum refinery with facility-wide cleanup activities regulated under Corrective Action Order on Consent #MHWCAO-12-01 issued by the state of Montana. On December 19, 2014, CMR submitted a request that soil excavated from Area of Contamination (AOC) #25 Old Poned Area be considered for CAMU eligibility under 40 CFR 264.555. In 2011, CMR excavated solid waste that had been buried at this AOC. Soil samples collected to document that cleanup identified soil contamination at the AOC.

CMR has conducted additional investigations at the AOC since the initial soil sampling in 2011. The soil and groundwater sampling documented hazardous constituents at levels above values protective of human health and the environment. CMR submitted an Interim Measures (IM) Work Plan on September 26, 2014,

that proposed excavating the soil that posed a risk to human health and the environment. On October 7, 2014, DEQ approved the IM Work Plan.

Regulatory Information

Please note DEQ has incorporated the Code of Federal Regulations (CFR) by reference in the Administrative Rules of Montana. For ease of reading, only the CFR citations are referenced in this document.

The Resource Conservation and Recovery Act (RCRA) governs the identification, generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA's main goals are to prevent the release of hazardous waste and constituents through appropriate management and to minimize the generation of hazardous waste, including promoting recycling and reuse. During cleanup of contaminated sites, RCRA regulations apply to cleanup waste and contaminated media that meet the regulatory definition of hazardous waste. EPA has noted in various documents that the incentives and objectives for the hazardous waste prevention and cleanup programs differ fundamentally.

The Land Disposal Restrictions (LDR) have played a role in many generators reducing the amount of hazardous waste they generate. However, LDR requirements also apply to waste generated during cleanups. These requirements can act as a disincentive to maximizing the amount of hazardous waste removed during cleanup. One of the objectives of the Corrective Action Management Unit (CAMU) rule is to provide some relief from the LDR requirements for waste managed while implementing cleanup.

Project Information

CMR requested a CAMU-eligibility determination for soil from AOC #25. AOC #25 is located in the southwestern corner of the plant. Soil in this area has been impacted by historical releases. The IM Work Plan proposed soil excavation to the top of the shale layer. Approximately 1812 cubic yards of hazardous waste and 1950 cubic yards of non-hazardous waste will be generated. The waste is expected to generally be contaminated soil.

The soil, upon excavation, will be managed as a hazardous waste and may be consolidated within the AOC before being loaded into containers. CMR proposed to ship the soil as CAMU-eligible waste to a hazardous waste landfill in Indiana. There are no hazardous waste landfills in Montana permitted to take hazardous waste from off-site sources. The CAMU-eligible soil will be shipped from the refinery in closed containers. The containers will be loaded at the refinery by heavy equipment and shipped by truck or railcar.

Regulatory Evaluation

40 CFR 264.555 states that DEQ may approve placement of CAMU-eligible waste in hazardous waste landfills not located at the site if the conditions of 40 CFR 264.555(a)(1) through (3) are met. DEQ believes these conditions have been met and discusses each one below.

1. 40 CFR 264.555(a)(1) requires that the waste meet the definition of CAMU-eligible waste. CAMU-eligible waste means all solid and hazardous waste and all media (including soils) and debris that are managed for implementing cleanup. The soil CMR has proposed for excavation as CAMU-eligible meets the requirements of 40 CFR 264.555(a)(1) because it will result in the reduction of contamination in the AOC.
2. 40 CFR 264.555(a)(2) requires that DEQ identify Principle Hazardous Constituents (PHCs) in accordance with 40 CFR 264.552(e)(4)(i) and (ii) and that the PHCs are treated to the standards listed in 40 CFR 264.555(a)(2)(i), (ii), or (iii).

PHCs include constituents that meet two criteria. First, DEQ must only consider those constituents that would be subject to the LDR treatment requirements. Second, PHCs are those constituents DEQ determines pose a risk to human health and the environment with concentrations that are substantially higher than the cleanup levels or goals at the site.

PHCs for AOC #25 were selected from in-situ soil sampling results of hazardous constituents using approved EPA methods for certain inorganics, volatile organic compounds, and semi-volatile organic compounds. The hazardous constituent list for CMR is based on historical knowledge, past sampling, and EPA guidance. Generally at CMR, the EPA Regional Screening Levels are used as the cleanup goals.

The sampling results were compared to ten times the Universal Treatment Standard (UTS) (40 CFR 268.49(d)). Sample results showed samples above ten times the UTS for barium and lead. The hazardous constituents were then compared to adjusted risk-based standards according to 40 CFR 264.552(e)(4)(i)(A). The risk-based standards used were the EPA Regional Screening Levels for human exposure under a residential use scenario. This scenario is more conservative than the industrial worker scenario. Using this method, lead was the only hazardous constituent identified as exceeding the values protective of human health. Therefore, lead was identified as the only PHC.

40 CFR 264.552(3)(4)(i)(B) states that DEQ will also designate constituents as PHCs, where appropriate, when risks to human health and the environment posed by the potential migration of constituents in waste to groundwater are substantially higher than cleanup levels at the site. The fate and transport characteristics under site conditions may be considered. DEQ did not believe it was appropriate to designate PHCs based on groundwater risks at the site because no CAMU is being constructed on-site. The CAMU-eligibility request proposes that soil from AOC #25 be disposed in an off-site permitted hazardous waste landfill.

40 CFR 264.555(a)(2) states that PHCs must be treated to the standards listed in 40 CFR 264.555(a)(2)(i), (ii), or (iii). Adjusted standard 264.552(e)(4)(v)(E)(I) is the standard that best fits CMR's proposal and it is referenced in 40 CFR 264.555(a)(2)(ii). 40 CFR 264.552(e)(4)(v) allows DEQ to adjust the treatment levels or methods to a higher or lower level based on factors listed in this section. 40 CFR 264.552(e)(4)(v)(E) allows DEQ to consider the long-term protection offered by the engineering design of the CAMU and related engineering controls. Section (E) goes on to list certain conditions including that the UTS standards are substantially met and the PHCs are of very low mobility.

The term substantially met is explained in the final rule (67 Federal Register (FR) 2992, January 22, 2002). EPA explains that the treatment standards would be substantially met where the overwhelming majority of constituents have been treated to meet the treatment standard, but a very few immobile constituents do not meet the standards. The waste in CMR's proposal appears to meet EPA's explanation of substantially meeting the treatment standards because only lead is above UTS. Lead was the only hazardous constituent designated as a PHC and seventy-eight percent of the samples have lead above the UTS. Although they don't meet the threshold to be considered PHCs, other hazardous constituent are present in the soil. The constituents above EPA's residential soil screening levels were arsenic, lead, ethylbenzene, 1-methylnaphthalene, and naphthalene. These constituent all met the UTS.

Lead is an inorganic constituent that in most soil is not very mobile. DEQ evaluated lead against the adjusted standards 40 CFR 264.552(e)(4)(v) which is the standard referenced in 40 CFR 264.555(a)(2)(ii).

When 40 CFR 264.555 was promulgated, EPA noted in the preamble that some hazardous constituents are often immobile under certain site conditions (67 FR 2992, January 22, 2002). EPA referred to very low mobility in the context that certain constituents have little ability to migrate from waste to receptors. The ability of a constituent to migrate is a function of the physical and chemical properties of the constituent and of site-specific conditions. EPA noted that conditions included the waste matrix, the site environment, conditions associated with the disposal unit, and how waste might be affected by potential liquid infiltration into the CAMU. Lead was listed in the Federal Register specifically as an immobile constituent.

A variety of federal guidance states that most lead is retained in soil and very little migrates to surface water through runoff or infiltrates to groundwater unless there are acidic soil conditions. The average pH of the soil samples provided in CMR's request is 9.36. This value indicates the soil is generally not acidic.

The makeup of the soil matrix also plays a role in lead mobility. The draft RCRA Facility Investigation (RFI) Report states that the Soil Conservation Service has classified soil at the refinery as Kobar Marias Complex consisting mostly of a Kobar silty loam and Marias silty clay. During RFI investigation work, three basic soil types were identified: poorly graded sand, clayey sand, and lean clay. DEQ expects that the clay content of soil at the CMR facility will prevent substantial mobility of lead.

The contaminated soil from CMR will be shipped to a permitted hazardous waste landfill. The landfill has a double liner system and leachate collection. Once the hazardous waste landfill is closed and capped, DEQ would expect very little infiltration from rainfall. Therefore, the constituents in the waste should not be mobilized. DEQ considers the engineering design of the landfill protective of human health and the environment.

Pursuant to 40 CFR 264.555(a)(2)(ii), the PHC meets the treatment standards adjusted in accordance with 264.552(e)(4)(v)(E)(I).

3. 40 CFR 264.555(a)(3) states that the landfill receiving the CAMU-eligible waste must have a RCRA (or state equivalent) hazardous waste permit, meet the requirements for a new landfill in 40 CFR 264, Subpart N, and be authorized to accept CAMU-eligible wastes. CMR has stated the waste will be submitted to Heritage Environmental Services, LLC in Roachdale, Indiana. The facility is a RCRA permitted landfill, meets the new landfill requirements in Subpart N, and is currently permitted to accept CAMU-eligible waste.

Regulatory Conclusion

CMR included in their request the information required in 40 CFR 264.555(b). The conditions of 40 CFR 264.555(a)(1) through (3) appear to have been met.

Objectives of Proposed Action

DEQ's objective is to approve or deny the request in compliance with 40 CFR 264.555.

Alternatives Considered

This section describes the alternatives considered.

Alternative I – Granting CMR’s Request

DEQ is approving CMR’s request because the conditions in 40 CFR 264.555(a)(1) through (3) have been met. Under this alternative, soil in the proposed area would be excavated and shipped off-site as CAMU-eligible waste to a permitted hazardous waste landfill.

Alternative II –Denial of Request

If insufficient information was submitted, DEQ could have denied CMR’s request pursuant to 40 CFR 264.555. CMR submitted sufficient information; therefore, DEQ does not believe the denial alternative is reasonable.

Under this alternative, CMR’s soil excavation would proceed. The soil would be shipped off-site as a hazardous waste. The soil would be required to meet the Universal Treatment Standards (40 CFR 268.49(d)) for soil without any adjustments. The soil would likely be treated by stabilization prior to disposal in a landfill.

Alternative III – No Action

Under this alternative, DEQ would not take action on CMR’s request by approving or denying the request. DEQ believes that this alternative is unreasonable given that CMR has submitted the information required in 40 CFR 264.555. This alternative was not considered further.

Scope of EA

DEQ’s authority for oversight of hazardous waste regulations is limited to Montana. Therefore, this EA only evaluates the potential impacts to the human environment resulting from DEQ’s proposed action and the reasonable alternatives at the location where the cleanup is taking place i.e. the CMR refinery in Great Falls, Montana.

There are no treatment, storage, or disposal facilities permitted in Montana to receive hazardous waste from another facility. Any hazardous waste generated will be shipped out of Montana to a hazardous waste permitted landfill that meets the requirements of 40 CFR 264 Subpart N – Landfills.

The EPA Regional Administrator or State Official with jurisdiction at the landfill must approve placement of CAMU-eligible waste in the landfill. 40 CFR 264.555 requires that the receiving landfill incorporate into their permit through permit issuance or a permit modification (including providing public notice and an opportunity for public comment) applicable standards for CAMU-eligible waste.

In addition, the landfill must provide written notice to persons on the facility mailing list of the landfill’s intent to receive CAMU-eligible waste. The impacts on the human environment resulting from receipt of CAMU-eligible waste at a landfill are evaluated by the government authority where the disposal facility is located.

Stipulations and Controls

Remediation at the refinery is governed by Corrective Action Order on Consent #MHWCAO-12-01. CMR must comply with the Order to be in compliance with Montana’s hazardous waste laws and regulations.

Analysis of Regulatory Impacts on Private Property Rights

A Private Property Assessment Act Checklist was completed for this action and is on file at DEQ. DEQ determined that no taking or damaging implications exist requiring a further impact assessment.

Summary of Impacts

The checklist below was completed for Alternative I and Alternative II.

The human environment includes those attributes, such as biological, physical, social, economic, cultural, and aesthetic factors, that interrelate to form the environment. Impacts may be adverse, beneficial, or both. The following criteria are used to rate the impacts:

- ◆ The severity, duration, geographic extent, and frequency of occurrence;
- ◆ The probability the impact will occur if the proposed action occurs;
- ◆ Growth-inducing or growth-inhibiting aspects of the impact;
- ◆ The quantity and quality of each environmental resource or value effected;
- ◆ The importance to the state and society of each environmental resource or value effected;
- ◆ Any precedent set as a result of an impact from the proposed action that would commit DEQ to future actions with significant impacts or a decision in principle about such future actions; and
- ◆ Potential conflict with local, state, or federal laws, requirements, or formal plans.

The following are definitions for major, moderate, minor, none, and unknown impacts on the human environment:

Major: A significant change from the present conditions of the human environment. Major impacts are serious enough to warrant preparing an environmental impact statement (EIS).

Moderate: Not a major or minor change from the present condition of the human environment. A single moderate impact may not warrant preparing an EIS; however, when considered with other impacts, an EIS may be required.

Minor: A slight change from the present condition of the human environment. Minor impacts are not serious enough to warrant preparing an EIS.

None: No change from the present conditions of the human environment.

Unknown: An EIS must be conducted to determine the effects on the human environment if impacts are unknown.

Tables 1 and 2 rate potential human environment impacts from Alternative I and Alternative II.

Table 1. Potential Impacts on Physical and Biological Environment

Alternative I = X
 Alternative II = O

Resources		Major	Moderate	Minor	None	Unknown	Discussion Attached
A.	Air Quality				X O		*
B.	Water Quality, Quantity, and Distribution				X O		
C.	Geology and Soil Quality, Stability, and Moisture				X O		*
D.	Historical and Archaeological Sites				X O		
E.	Aesthetics				X O		
F.	Terrestrial and Aquatic Life and Habitats				X O		
G.	Vegetation Cover, Quantity, and Quality				X O		
H.	Unique, Endangered, Fragile, or Limited Environmental Resources				X O		
I.	Demands on Environmental Resource of Water, Air, and Energy				X O		*
J.	Cumulative and Secondary Impacts				X O		*

A. Air Quality

The excavation and handling of soil may result in an increase in fugitive emissions from the refinery. However, CMR will need to excavate soil to comply with the approved IM Work Plan regardless of the waste’s designation. The excavation will occur over a limited period and if done in compliance with air quality requirements, the impacts should be minor. The excavation and handling of soil from the project will occur regardless of the designation of the waste as CAMU-eligible. Therefore, DEQ’s designation of the waste will have no bearing on air quality.

C. Geology and Soil Quality, Stability, and Moisture

Under both Alternatives I and II, CMR plans to remove soil containing hazardous constituents. The removal of contaminated soil is expected to positively impact human health and the environment. Since the soil will be removed under either Alternative, no impact has been noted for DEQ’s action.

I. Demands on Environmental Resources of Water, Air, and Energy

Management of excavated soil will require energy since heavy equipment will be required to perform the work for both Alternatives. Under Alternative II, the resource use for management of the soil to another

hazardous waste management unit for treatment will result in additional energy consumption. If the proposal was denied, the soil will be shipped to a hazardous waste management facility in another state by rail and/or truck for stabilization and disposal.

DEQ has noted no impacts because the use of resources for excavation and transportation will occur whether the soil is designated CAMU-eligible or not.

J. Cumulative and Secondary Impacts

Cumulative impacts are impacts that may be negligible or minor for a specific project or action under consideration, but collectively (many similar projects or actions) or incrementally may result in significant impacts. Secondary impacts are those occurring at a later time or distance from the triggering action.

In April 2014, DEQ approved the CAMU-eligible waste designation for soil excavated as part of an IM Work Plan for an area of the plant referred to as the Lead Assessment Study Area (LAS). Lead was designated as a PHC for this project. A large volume of soil has been generated from this project and shipped by rail and truck to the Heritage Environmental Services, LLC landfill in Roachdale, Indiana.

On November 17, 2014, DEQ approved the CAMU-eligible waste designation for soil excavated as part of cleanup activities at the AOC #24 Rail Loading Area. CMR estimated that 2000 to 2500 cubic yards of soil was to be generated and shipped by rail and truck to the Heritage Environmental Services, LLC landfill in Roachdale, Indiana. Although hazardous constituents were present in the soil, none met the threshold to be designated a PHC.

DEQ does not anticipate any additional CAMU-eligible waste determination requests from CMR.

CMR has indicated to DEQ it plans to ship excavated soil off-site regardless of whether the waste are designated as CAMU-eligible. The main activities that may impact the environment have happened or are anticipated to happen regardless of DEQ's decision. Therefore, DEQ does not anticipate cumulative impacts or any secondary impacts at the Great Falls refinery from Alternatives I or II.

Under Alternatives I and II the hazardous waste will be shipped off-site for disposal. The disposal of the waste may impact the physical and biological environment where the hazardous waste management unit is located. Since a facility permitted to receive hazardous waste must comply with the standards of 40 CFR 264, any impacts should be addressed under the receiving facility's permit.

Table 2. Potential Impacts on Social, Economic, and Cultural Environment

Resources		Major	Moderate	Minor	None	Unknown	Discussion Attached
A.	Social Structures and Mores				X O		
B.	Cultural Uniqueness and Diversity				X O		
C.	Local and State Tax Base and Tax Revenue				X O		
D.	Agricultural or Industrial Production			X O			*
E.	Human Health				X O		*
F.	Access to and Quality of Recreational and Wilderness Activities				X O		
G.	Quantity and Distribution of Employment				X O		
H.	Distribution of Population				X O		
I.	Demands for Governmental Services			X O			*
J.	Industrial and Commercial Activity				X O		
K.	Locally Adopted Environmental Plans and Goals				X O		
L.	Cumulative and Secondary Impacts				X O		*

D. Agricultural or Industrial Production

DEQ is approving waste disposal in a hazardous waste landfill under adjusted treatment standards. No treatment of the soil is required prior to land disposal. This disposal is more economical and less resource intensive than management that would require treatment prior to disposal. Economical management and disposal of the hazardous waste is a minor benefit for CMR and perhaps for industrial production. Under Alternative II, if excavated soil must be stabilized and disposed of as hazardous non-CAMU-eligible waste, the disposal cost will be greater. Alternative II would have a minor negative impact on the cost of implementing the IM Work Plan.

E. Human Health

Excavation and handling of the soils has the potential to expose on-site workers to contaminated soil. CMR must comply with Occupational Safety and Health Administration (OSHA) regulations including those for hazardous waste operations. CMR is required to comply with applicable air quality regulations that are protective of ambient air quality surrounding the refinery. Therefore, the project should not negatively affect the surrounding community.

Completing the work should result in a reduction in the long-term human exposure potential because the toxicity, mobility, and volume of contaminated soil will be reduced.

The EA is evaluating the designation of the waste as CAMU-eligible. Because CMR will excavate and manage the waste regardless of the soil's designation, DEQ does not anticipate impacts to human health regarding DEQ's action.

I. Demands for Governmental Services

The requirements of 40 CFR 264.555 will require that governmental service be used in Montana and at the location of the receiving landfill. The tasks that the government undertakes are prescribed in the regulations and are not onerous. It is possible that DEQ may be contacted by the receiving landfill's regulators. Therefore, minor impacts to governmental services are possible.

L. Cumulative and Secondary Impacts

DEQ does not anticipate that the designation of the waste as CAMU-eligible will have cumulative or secondary in Montana.

Individuals or Groups Contributing to EA

Montana Department of Environmental Quality

Draft EA Prepared

By: Denise A. Kirkpatrick

Date: January 31, 2015

Final EA Prepared

By: Denise A. Kirkpatrick

Date: March 20, 2015

Recommendation

DEQ has selected Alternative I. CMR included in their request the information required in 40 CFR 264.555(b). CMR submitted sufficient information to DEQ for approval of the request for waste disposal pursuant to 40 CFR 264.555(a)(1) through (3).

DEQ is providing public notice and a reasonable opportunity for public comment as required in 40 CFR 264.555(c).

DEQ proposes the approval of placement of CAMU-eligible waste in an off-site hazardous waste landfill. DEQ believes that the adjusted treatment standards are protective of human health and the environment given the engineering design of a hazardous waste landfill permitted to receive CAMU-eligible waste.

The EA is an adequate level of environmental review; an EIS is not required. The EA analysis demonstrates that this state action will not be a major action significantly affecting the quality of the human environment.