SWMU 3	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria					
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to subsurface soils when combined with CM2.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:					
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, As, Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 3	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria					
Long Term Reliability and Effectiveness					
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will effectively reduce the calculated risk by reducing the exposure to surface soils.	The CM will effectively reduce the calculated risk by reducing the exposure to subsurface soils.	The CM will effectively reduce the calculated risk; except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation	Unrealistic operation and maintennance requirements, the ongoing activity and heavy equipment traffic in the area would continuously damage the soil cap; excavations required to extract the slag for beneficial reuse will contribute to a high risk of failure.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost					
Cost of Implementation	$0	$0	$0	$1,170,000	$12,163,000
Estimated Future Costs	$0	$0	$0	$222,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility, disposal fees; and the availability of backfill materials.
Key Advantages					
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM3;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages					
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to implement and impossible to maintain; High cost to reward ratio.	Existing Site conditions would make the CM difficult to implement in some locations High cost
Status					
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; **recommended.**	Retained for further evaluation in combination with CM2; **recommended.**	Retained for further evaluation in combination with CM3; **not recommended** for this area due to ongoing slag processing in this area.	**Dismissed,** the slag material is considered a valuable commodity and is processed under OEPA regulations.

SWMU 9 Target Area 2	Corrective Measure Options		
	CM1	CM2	CM3
	No Further Action	Work Place Controls, Surface	Work Place Controls, Subsurface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria			
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to subsurface soils when combined with CM2.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	Criterion is not applicable because the calculated index was below 1.0	Criterion is not applicable because the calculated index was below 1.0	Criterion is not applicable because the calculated index was below 1.0
Blood Lead Level (BLL) below 10 µg/dL	The CM does not reduce the BLL. No evidence of a release to the environment was found during inspection of the SWMU. The BLL in excess of the Site screening criteria is associated with the SWMUs assigned Target Area (TA 2)	Not applicable to this SWMU; however in general, the CM alters the assumptions utilized in the risk assessment portion of the RFI to reduce the BLL for the Target Area below 10 µg/dL.	Not applicable to this SWMU; however in general, the CM alters the assumptions utilized in the risk assessment portion of the RFI to reduce the BLL for the Target Area below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Pb) contributing to the Target Area Risk Based Factors.	No evidence of a release to the environment was found during inspection of the SWMU; therefore Source Control is not applicable.	No evidence of a release to the environment was found during inspection of the SWMU; therefore Source Control is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media	Criterion is not applicable because the CM would not involve removal of contaminated media	Criterion is not applicable because the CM would not involve removal of contaminated media

SWMU 9 Target Area 2	Corrective Measure Options		
	CM1	CM2	CM3
	No Further Action	Work Place Controls, Surface	Work Place Controls, Subsurface
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will reduce the exposure to surface soils.	The CM will reduce the exposure to subsurface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the potential COPIs.	The CM would not reduce the toxicity, mobility or volume of the potential COPIs.	The CM would not reduce the toxicity, mobility or volume of the potential COPIs.
Short term effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost			
Cost of Implementation	$0	$0	$0
Estimated Future Costs	$0	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages			
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation; Lower cost	Meets threshold criteria; Ease of implementation; Lower cost
Key Disadvantages			
	Baseline risks to human health and environment is not acceptable;	Does not alter the mobility, toxicity, or volume of potentially impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of potentially impacted material; Long term responsibility for administering program
Status			
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended** for use in combination with CM3; No evidence of a release to the environment was found during inspection of the SWMU; the CM is recommended as a general precaution as applicable to the target area.	Retained for further evaluation; **recommended** for use in combination with CM2; No evidence of a release to the environment was found during inspection of the SWMU; the CM is recommended as a general precaution as applicable to the target area.

SWMU 13	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria					
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to soils when combined with CM2.	Yes, the CM meets this criteria for potential exposure when combined with WPC.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:					
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The risk assessment for subsurface soils for this Target Area resulted in an exceedance of the non-carcinogenic HI; however, no COPI were detected in the subsurface above the screening criteria for this SWMU. The CM would not affect the risk calculation	The CM eliminates the potentially complete exposure pathways thereby reducing the non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, As, Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 13	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria					
Long Term Reliability and Effectiveness					
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will reduce the exposure to subsurface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost					
Cost of Implementation	$0	$0	$0	$4,500	$11,000
Estimated Future Costs	$0	$0	$0	$31,500	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost associated with removal of small section of an area comprised mostly of slag material.
Key Advantages					
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM3;	Meets the threshold criteria;
Key Disadvantages					
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to maintain cap.	Selective removal of slag surrounding a single boring will not result in the removal of the source (i.e. slag fill).
Status					
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; The CM is **recommended** for this area.	Retained for further evaluation in combination with CM2; The CM is **recommended** as a general precaution applicable to the Target Area.	Retained for further evaluation in combination with CM3; The CM is **not recommended** due to maintenance concerns.	**Dismissed,** selective material removal will not result in satisfying the threshold criteria and complete removal of the slag material is not a practical solution.

SWMU 14 Target Area 10	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM alters the assumptions utilized in the risk assessment portion of the RFI to aid in reducing the blood lead level for the Target Area below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, Mn, and Pb) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 14	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 10	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$4,500	$38,000
Estimated Future Costs	$0	$0	$31,500	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** due to maintenance concerns.	**Recommended** CM to be used in conjunction with WPC.

SWMU 22 Target Area 3	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe and Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 22	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 3	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Unrealistic operation and maintenance requirements; the ongoing activity and heavy equipment traffic in the area would continuously damage the soil cap; storage and processing of mill scale will contribute to a high risk of failure.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$74,000	$3,946,000
Estimated Future Costs	$0	$0	$43,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to implement and impossible to maintain; High risk of failure	High cost
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area due to ongoing material processing in this area.	**Dismissed,** the ongoing material processing in the area requires the use of the slag subsurface.

SWMU 37 Target Area 7	Corrective Measure Options		
	CM1	CM2	CM3
	No Further Action	Work Place Controls, Subsurface	Asphalt Cap
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of an asphalt cap would consist of leveling the impacted area or excavating up to 2 feet of soil to accommodate the cap, whichever is required to meet adjacent site conditions. Following the leveling or excavation, a slag subbase would be placed and compacted. An asphalt course would be added consisting of a binder course and a wearing course. The thickness of the subbase, binder course, and wearing course will be designed to suit the use of the area. The minimum pavement section would consist of 12 inches of subbase, 2 inches of binder course, and 0.5 inch wearing course.
Threshold Criteria			
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathway for industrial workers thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions. The CM alone does not remove the complete exposure pathway for construction workers.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM alters the assumptions utilized in the risk assessment portion of the RFI to aid in reducing the blood lead level for the Target Area below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions. The CM alone does not remove the complete exposure pathway for construction workers.
Source Control	The CM would not control the source of COPIs (i.e. Fe and Pb) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 37	Corrective Measure Options		
	CM1	**CM2**	**CM3**
Target Area 7	**No Further Action**	**Work Place Controls, Subsurface**	**Asphalt Cap**
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to subsurface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Risk of failure unlikely under general operating conditions.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.
Short term effectiveness	Ineffective, there is no difference in the effectiveness of CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.
Cost			
Cost of Implementation	$0	$0	$9,000
Estimated Future Costs	$0	$0	$40,000
Certainty of Future Costs	There are no costs associated with CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 10% of the area.
Key Advantages			
	No cost associated with the CM.	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC; Currently implemented.
Key Disadvantages			
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;
Status			
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for evaluation; the CM is **recommended** for use in combination with WPC; the area is currently covered by asphalt.

SWMU 40 Target Area 4	Corrective Measure Options			
	CM1 No Further Action	CM2 Work Place Controls, Surface	CM3 Asphalt Cap	CM4 Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of an asphalt cap would consist of leveling the impacted area or excavating up to 2 feet of soil to accommodate the cap, whichever is required to meet adjacent site conditions. Following the leveling or excavation, a slag subbase would be placed and compacted. An asphalt course would be added consisting of a binder course and a wearing course. The thickness of the subbase, binder course, and wearing course will be designed to suit the use of the area. The minimum pavement section would consist of 12 inches of subbase, 2 inches of binder course, and 0.5 inch wearing course.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, and As,) detected above screening criteria	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 40	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 4	**No Further Action**	**Work Place Controls, Surface**	**Asphalt Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	CM will effectively reduce the calculated risk due to exposure to surface soils to acceptable levels	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Risk of failure unlikely under general operating conditions.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$9,500	$35,000
Estimated Future Costs	$0	$0	$40,500	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 10% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials.	Source removal does not prohibit/reduce potential for recontamination due to continual general operations.
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation but **not recommended**.	Retained for further evaluation. The CM is **recommended;** an asphalt cap will facilitate future material storage and processing.	Retained for further evaluation; however **not recommended** due to anticipated use of the area after the completion of the CM.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 46	Corrective Measure Options		
	CM1	CM2	CM3
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria			
Protection of Human Health and the Environment	No, CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to soils when combined with CM2.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

SWMU 46	Corrective Measure Options		
	CM1	**CM2**	**CM3**
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0.	The CM will reduce the exposure to surface soils.	The CM will reduce the exposure to subsurface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.
Short term effectiveness	Ineffective, there is no difference in the effectiveness of CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost			
Cost of Implementation	$0	$0	$0
Estimated Future Costs	$0	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages			
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost
Key Disadvantages			
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of potential source material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of potential source material; Long term responsibility for administering program
Status			
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; The CM is **recommended** as a general precaution applicable to the Target Area.	Retained for further evaluation in combination with CM2; The CM is **recommended** as a general precaution applicable to the Target Area.

SWMU 48 Target Area 9	Corrective Measure Options			
	CM1 Work Place Controls, Surface	CM2 Soil/Slag Cap	CM3 Asphalt Cap	CM4 Surface Excavation
Description	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of an asphalt cap would consist of leveling the impacted area or excavating up to 2 feet of soil to accommodate the cap, whichever is required to meet adjacent site conditions. Following the leveling or excavation, a slag subbase would be placed and compacted. An asphalt course would be added consisting of a binder course and a wearing course. The thickness of the subbase, binder course, and wearing course will be designed to suit the use of the area. The minimum pavement section would consist of 12 inches of subbase, 2 inches of binder course, and 0.5 inch wearing course.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-1}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM alters the assumptions utilized in the risk assessment portion of the RFI to reduce the non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 48	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 9	Work Place Controls, Surface	Soil/Slag Cap	Asphalt Cap	Surface Excavation
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils to acceptable levels	The CM will effectively reduce the calculated risk to acceptable levels, except for the construction worker risk scenario.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Risk of failure unlikely under general operating conditions.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements. Difficult access for construction equipment	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$31,000	$69,000	$107,000
Estimated Future Costs	$0	$11,000	$62,000	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 10% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	Meets threshold criteria ; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM1;	Meets threshold criteria when used in conjunction with CM1;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	Does not reduce the toxicity or volume of impacted materials; Poor accessibility for hot roll asphalt equipment	Existing Site conditions would make the CM difficult to implement
Status				
	Retained for further evaluation in combination with CM4; **recommended.**	Retained for further evaluation in combination with CM1; the CM is **not recommended** for this area.	Retained for further evaluation; however the CM **is not recommended** based on construction equipment accessibility concerns	Retained for further evaluation; however the CM **is recommended** for this area.

SWMU 49 Target Area 9	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	Work Place Controls, Surface	Soil/Slag Cap	Asphalt Cap	Surface Excavation
Description	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of an asphalt cap would consist of leveling the impacted area or excavating up to 2 feet of soil to accommodate the cap, whichever is required to meet adjacent site conditions. Following the leveling or excavation, a slag subbase would be placed and compacted. An asphalt course would be added consisting of a binder course and a wearing course. The thickness of the subbase, binder course, and wearing course will be designed to suit the use of the area. The minimum pavement section would consist of 12 inches of subbase, 2 inches of binder course, and 0.5 inch wearing course.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-1}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM alters the assumptions utilized in the risk assessment portion of the RFI to reduce the non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The COPI for this SWMU is Fe. The CM has limited to no affect on reducing the BLL for the Target Area.	The COPI for this SWMU is Fe. The CM has limited to no affect on reducing the BLL for the Target Area.	The COPI for this SWMU is Fe. The CM has limited to no affect on reducing the BLL for the Target Area.	The COPI for this SWMU is Fe. The CM has limited to no affect on reducing the BLL for the Target Area.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 49	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 9	Work Place Controls, Surface	Soil/Slag Cap	Asphalt Cap	Surface Excavation
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Risk of failure unlikely under general operating conditions.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would not reduce the toxicity or volume of COPIs; however, CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements. Difficult access for construction equipment	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$5,000	$7,500	$16,000
Estimated Future Costs	$0	$31,000	$34,500	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 10% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials. Proposed cost is limited to an approximate 1000 sf area.
Key Advantages				
	Meets threshold criteria ; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM1;	Meets threshold criteria when used in conjunction with CM1;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	Does not reduce the toxicity or volume of impacted materials; Poor accessibility for asphalt construction equipment	Existing Site conditions would make the CM difficult to implement
Status				
	Retained for further evaluation; the CM is **recommended** for this area.	Retained for further evaluation; however the CM is **not recommended** based on construction equipment accessibility concerns	Retained for further evaluation; however the CM is **not recommended** based on construction equipment accessibility concerns	Retained for further evaluation; however the CM is **not recommended** for this area.

SWMU 51 Target Area 10	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM alters the assumptions utilized in the risk assessment portion of the RFI to aid in reducing the blood lead level for the Target Area below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, Mn, and Pb) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 51	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 10	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$4,500	$38,000
Estimated Future Costs	$0	$0	$31,500	$0
Certainty of Future Costs	There are no costs associated with CM1	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	No cost associated with CM1;	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; The CM is **not recommended** due to maintenance concerns.	**Recommended** CM to be used in conjunction with WPC.

SWMU 52 Target Area 10	Corrective Measure Options			
	CM1 No Further Action	CM2 Work Place Controls, Surface	CM3 Soil/Slag Cap	CM4 Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The risk assessment for this Target Area resulted in an exceedances of the BLL; however, none of the samples assigned to this SWMU exceeded the screening criteria. The CM has no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.
Source Control	The CM would not control the source of COPIs (i.e. Fe, Mn, and Pb) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 52	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 10	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$10,000	$73,000
Estimated Future Costs	$0	$0	$33,000	$0
Certainty of Future Costs	There are no costs associated with CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	No cost associated with CM1;	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria.	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; the CM is **recommended** for this area.	Retained for further evaluation; however the CM is **not recommended** for this area.	Retained for further evaluation; however the CM is **not recommended** for this area.

SWMU 53 Target Area 9	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	Work Place Controls, Surface	Soil/Slag Cap	Asphalt Cap	Surface Excavation
Description	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of an asphalt cap would consist of leveling the impacted area or excavating up to 2 feet of soil to accommodate the cap, whichever is required to meet adjacent site conditions. Following the leveling or excavation, a slag subbase would be placed and compacted. An asphalt course would be added consisting of a binder course and a wearing course. The thickness of the subbase, binder course, and wearing course will be designed to suit the use of the area. The minimum pavement section would consist of 12 inches of subbase, 2 inches of binder course, and 0.5 inch wearing course.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 53	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 9	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Asphalt Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Risk of failure unlikely under general operating conditions.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would not reduce the toxicity or volume of COPIs; however, he CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short term effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implement ability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation		$45,000	$69,000	$2,502,000
Estimated Future Costs	$0	$38,000	$171,000	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 10% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials.	Does not reduce the toxicity or volume of impacted materials.	High costs.
Status				
	Retained for further evaluation; **recommended** for use in combination with CM2 and CM3.	Retained for further evaluation; **recommended** for use in combination with CM1 and partial use of CM3.	Retained for further evaluation; **recommended** for partial use in combination with CM1 and CM2.	Retained for further evaluation; however, the CM is **not recommended** for this area.

SWMU 59	Corrective Measure Options		
	CM1	CM2	CM3
Independent	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria			
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The CM does not aid in reducing the Target Area blood lead level below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 59	Corrective Measure Options		
	CM1	CM2	CM3
Independent	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short term effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implement ability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost			
Cost of Implementation		$6,000	$22,000
Estimated Future Costs	$0	$32,000	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages			
	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site; Continuation of previous Interim Measure.
Key Disadvantages			
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials.	Volume of material to be disposed will be dependent on confirmation sampling.
Status			
	Retained for further evaluation; the CM is **not recommended** for the area.	Retained for further evaluation; the CM is **not recommended** for the area.	Retained for further evaluation; the CM is **recommended** for this area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 60 Target Area 5	Corrective Measure Options		
	CM1	CM2	CM3
	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria			
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 60 Target Area 5	Corrective Measure Options		
	CM1 Work Place Controls, Surface	CM2 Soil/Slag Cap	CM3 Surface Excavation
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source.
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation.	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short term effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implement ability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost			
Cost of Implementation		$7,500	$47,000
Estimated Future Costs	$0	$32,500	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages			
	Meets threshold criteria; Ease of implementation; Lower cost.	Meets threshold criteria when used in conjunction with WPC.	Meets the threshold criteria; Removes the source from the Site.
Key Disadvantages			
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program.	Does not reduce the toxicity or volume of impacted materials.	Relatively higher initial costs.
Status			
	Retained for further evaluation; the CM is **recommended** for the area.	Retained for further evaluation; the CM is **not recommended** for the area.	Retained for further evaluation; the CM is **not recommended** for this area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 61 Target Area 5	Corrective Measure Options	
	CM1	CM2
	No Further Action	Work Place Controls, Surface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 61 **Target Area 5**	Corrective Measure Options	
	CM1 **No Further Action**	**CM2** **Work Place Controls, Surface**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; the CM is **recommended** for this area.

SWMU 64	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependent upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria					
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to subsurface soils when combined with CM2.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:					
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe, As, Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 64	Corrective Measure Options				
	CM1	CM2	CM3	CM4	CM5
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria					
Long Term Reliability and Effectiveness					
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will effectively reduce the calculated risk by reducing the exposure to surface soils.	The CM will effectively reduce the calculated risk by reducing the exposure to subsurface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation	Unrealistic operation and maintenance requirements; the ongoing activity and heavy equipment traffic in the area would continuously damage the soil cap; excavations required to extract the slag for beneficial reuse will contribute to a high risk of failure.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost					
Cost of Implementation	$0	$0	$0	$47,000	$495,000
Estimated Future Costs	$0	$0	$0	$39,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages					
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM3;	Meets the threshold criteria; Removes the source from the Site; Relatively higher initial costs.
Key Disadvantages					
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to implement and impossible to maintain; High cost to reward ratio.	Existing Site conditions would make the CM difficult to implement in some locations High cost
Status					
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; **recommended.**	Retained for further evaluation in combination with CM2; **recommended.**	Retained for further evaluation in combination with CM3; **not recommended** for this area due to ongoing slag processing in this area.	**Dismissed,** the slag material is considered a valuable commodity and is processed under OEPA regulations.

SWMU 65 Target Area 1	Corrective Measure Options		
	CM1	CM2	CM3
	No Further Action	Work Place Controls, Surface	Work Place Controls, Subsurface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria			
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to subsurface soils when combined with CM2.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the calculated risk for the Target Area was below $1x10^{-4}$	Criterion is not applicable because the calculated risk for the Target Area was below $1x10^{-4}$	Criterion is not applicable because the calculated risk for the Target Area was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	No samples were collected associated with this area. The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	No samples were collected associated with this area. The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	No samples were collected associated with this area. The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	No samples were collected associated with this SWMU.	No samples were collected associated with this SWMU.	No samples were collected associated with this SWMU.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

SWMU 65	Corrective Measure Options		
	CM1	CM2	CM3
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will effectively reduce the Target Area calculated risk by reducing the exposure to surface soils.	The CM will effectively reduce the Target Area calculated risk by reducing the exposure to subsurface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost			
Cost of Implementation	$0	$0	$0
Estimated Future Costs	$0	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages			
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost
Key Disadvantages			
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status			
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; The CM is **recommended** as a general precaution applicable to the Target Area.	Retained for further evaluation in combination with CM2; The CM is **recommended** as a general precaution applicable to the Target Area.

SWMU 66 Target Area 2	CM1 Work Place Controls, Surface	CM2 Work Place Controls, Subsurface	CM3 Soil/Slag Cap	CM4 Surface Excavation
Description	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to surface soils when combined with CM2.	Yes, the CM meets this criteria for potential exposure to subsurface soils when combined with CM1.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	Criterion is not applicable because the Target Area calculated non-carcinogenic HI was below 1.0.	Criterion is not applicable because the Target Area calculated non-carcinogenic HI was below 1.0.	Criterion is not applicable because the Target Area calculated non-carcinogenic HI was below 1.0.	Criterion is not applicable because the Target Area calculated non-carcinogenic HI was below 1.0.
Blood Lead Level below 10 µg/dL	The CM alters the assumptions utilized in the risk assessment portion of the RFI to aid in reducing the blood lead level for the Target Area below 10 µg/dL.	The CM alters the assumptions utilized in the risk assessment portion of the RFI to aid in reducing the blood lead level for the Target Area below 10 µg/dL.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the blood lead level for the Target Area below 10 µg/dL under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area blood lead level below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to, and migration of, the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 66 Target Area 2	CM1 Work Place Controls, Surface	CM2 Work Place Controls, Subsurface	CM3 Soil/Slag Cap	CM4 Surface Excavation
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk by reducing the exposure to surface soils to an acceptable level.	The CM will effectively reduce the calculated risk by reducing the exposure to subsurface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$10,000	$20,000/$48,000
Estimated Future Costs	$0	$0	$33,000	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Costs based on reduced foot print of 1000 sf; costs may vary substantially based on disposal options and results of confirmation sampling
Key Advantages				
	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM1; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2;	Meets the threshold criteria; Removes the source from the Site;
Key Disadvantages				
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to implement and maintain functionality	Limited excavation does not address subsurface concerns.
Status				
	Retained for further evaluation in combination with CM2 and CM3; **recommended.**	Retained for further evaluation in combination with CM1 and CM3; **recommended.**	Retained for further evaluation in combination with CM1 and CM2; **Not recommended.**	Retained for further evaluation; the CM is **recommended** for the area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 70 Target Area 5	Corrective Measure Options	
	CM1	CM2
	No Further Action	Work Place Controls, Surface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 70	Corrective Measure Options	
	CM1	**CM2**
Target Area 5	**No Further Action**	**Work Place Controls, Surface**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will aid to reduce the calculated risk by reducing the exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM.	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation; Lower cost
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**

SWMU 75 Target Area 5	Corrective Measure Options		
	CM1	CM2	CM3
	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	The CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria			
Protection of Human Health and the Environment	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. The CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 75	Corrective Measure Options		
	CM1	CM2	CM3
Target Area 5	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source.
Reliability and Risk of Failure	Reliable with proper implementation; risk of failure associated with improper implementation.	Reliability of CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short term effectiveness	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implement ability	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost			
Cost of Implementation		$5,000	$16,000
Estimated Future Costs	$0	$31,000	$0
Certainty of Future Costs	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages			
	Meets threshold criteria; Ease of implementation; Lower cost.	Meets threshold criteria when used in conjunction with WPC; Majority of the cost associated with maintenance.	Meets the threshold criteria; Removes the source from the Site.
Key Disadvantages			
	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program.	Does not reduce the toxicity or volume of impacted materials.	
Status			
	Retained for further evaluation; the CM is recommended for the area.	Retained for further evaluation; the CM is not recommended for the area.	Retained for further evaluation; the CM is not recommended for this area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 76b **Target Area 10**	Corrective Measure Options			
	CM1 **No Further Action**	**CM2** **Work Place Controls, Surface**	**CM3** **Soil/Slag Cap**	**CM4** **Surface Excavation**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	The risk assessment for this Target Area resulted in an exceedances of the BLL; however, none of the samples assigned to this SWMU exceeded the screening criteria. The CM has no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.
Source Control	The CM would not control the source of COPIs (i.e. Fe, Mn, and Pb) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 76b Target Area 10	Corrective Measure Options			
	CM1 No Further Action	CM2 Work Place Controls, Surface	CM3 Soil/Slag Cap	CM4 Surface Excavation
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$4,500	$11,000
Estimated Future Costs	$0	$0	$31,500	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	Elimination of Iron as COPI unlikely with limited excavation and replacement with slag fill.
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area.	Retained for further evaluation; the CM is **not recommended** for this area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 80 **Target Area 3**	Corrective Measure Options	
	CM1	**CM2**
	No Further Action	**Work Place Controls, Surface**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 80 **Target Area 3**	Corrective Measure Options	
	CM1 **No Further Action**	**CM2** **Work Place Controls, Surface**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will aid to reduce the calculated risk by reducing the exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation.
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; The CM is **recommended** as a general precaution applicable to the Target Area.

AOC 87c Target Area 6	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

AOC 87c	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 6	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$5,000	$16,000
Estimated Future Costs	$0	$0	$31,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area.	Retained for further evaluation; the CM is **not recommended** for this area.

AOC 90 Target Area 3	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe and Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

AOC 90	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 3	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Unrealistic operation and maintenance requirements; the ongoing activity and heavy equipment traffic in the area would continuously damage the soil cap; storage and processing of recycled steel will contribute to a high risk of failure.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$303,000	$3,080,000
Estimated Future Costs	$0	$0	$79,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 2.5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; Difficult to implement and impossible to maintain; High risk of failure	High cost
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area due to ongoing material processing in this area.	**Dismissed,** the ongoing steel recycling in the area requires the use of the slag subsurface.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 95	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Independent	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the calculated risk was below $1x10^{-4}$	Criterion is not applicable because the calculated risk was below $1x10^{-4}$	Criterion is not applicable because the calculated risk was below $1x10^{-4}$	Criterion is not applicable because the calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the non-carcinogenic HI below 1.0 under general operating conditions.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

AOC 95	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Independent	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Cap damage due to general operating conditions should be anticipated and can be addressed with general inspection and maintenance activity.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$4,500	$11,000
Estimated Future Costs	$0	$0	$31,500	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials;	Not practical to remove the potential source (i.e. Slag Material).
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation; however the CM is **not recommended** for this area .	Retained for further evaluation; however the CM is **not recommended** for this area .

AOC 97	Corrective Measure Options		
	CM1	CM2	CM3
Target Area 1	**No Further Action**	**Work Place Controls, Surface**	**Work Place Controls, Subsurface**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to control potentially complete exposure pathways from subsurface soils to industrial and construction workers as necessary to facilitate reducing the risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to subsurface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted subsurface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria			
Protection of Human Health and the Environment	No, CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils when combined with CM3.	Yes, the CM meets this criteria for potential exposure to soils when combined with CM2.
Attainment of Media Cleanup Objectives:			
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 97	Corrective Measure Options		
	CM1	CM2	CM3
Target Area 1	No Further Action	Work Place Controls, Surface	Work Place Controls, Subsurface
Balancing Criteria			
Long Term Reliability and Effectiveness			
Effectiveness of the Alternative	Ineffective, the CM would not reduce the HI to below 1.0.	The CM will reduce the exposure to surface soils.	The CM will reduce the exposure to subsurface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.
Short term effectiveness	Ineffective, there is no difference in the effectiveness of CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost			
Cost of Implementation	$0	$0	$0
Estimated Future Costs	$0	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages			
	There are no costs associated with the CM	Meets threshold criteria when used in conjunction with CM3; Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with CM2; Ease of implementation; Lower cost
Key Disadvantages			
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of potential source material; Long term responsibility for administering program	Does not alter the mobility, toxicity, or volume of potential source material; Long term responsibility for administering program
Status			
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation in combination with CM3; The CM is **recommended** as a general precaution applicable to the Target Area.	Retained for further evaluation in combination with CM2; The CM is **recommended** as a general precaution applicable to the Target Area.

AOC 101 Target Area 10	Corrective Measure Options	
	CM1	CM2
	No Further Action	Work Place Controls, Surface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	No samples were collected associated with this area. The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	No samples were collected associated with this area. The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.
Blood Lead Level below 10 µg/dL	The risk assessment for this Target Area resulted in an exceedances of the BLL; however, none of the samples assigned to this SWMU exceeded the screening criteria. The CM has no affect on reducing the BLL for the Target Area.	The CM has limited to no affect on reducing the BLL for the Target Area.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 101 **Target Area 10**	Corrective Measure Options **CM1** **No Further Action**	**CM2** **Work Place Controls, Surface**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will aid to reduce the calculated risk by reducing the exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation.
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; The CM is **recommended** as a general precaution applicable to the Target Area.

SWMU 102 Target Area 11	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

SWMU 102	Corrective Measure Options			
	CM1	**CM2**	**CM3**	**CM4**
Target Area 11	**No Further Action**	**Work Place Controls, Surface**	**Soil/Slag Cap**	**Surface Excavation**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Extreme cap damage due to use of area should be anticipated.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$6,000	$11,000
Estimated Future Costs	$0	$0	$32,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; General operation results in excessive damage to CM.	Not practical to remove the potential source (i.e. Slag Material).
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area.	Retained for further evaluation; the CM is **not recommended** for this area.

SWMU 103 Target Area 11	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Work Place Controls, Surface	Soil/Slag Cap	Surface Excavation
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	CM will be utilized to eliminate potentially complete exposure pathways; therefore reducing the calculated risk to an acceptable level. The use of a soil/slag cap would consist of leveling the impacted area and installing two feet of soil/slag backfill. Dependant upon the location and intended use of the area, the cap may be covered with six inches of topsoil and vegetated.	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

SWMU 103 Target Area 11	Corrective Measure Options			
	CM1 No Further Action	CM2 Work Place Controls, Surface	CM3 Soil/Slag Cap	CM4 Surface Excavation
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Reliability of the CM limited to maintaining cover thickness. Extreme cap damage due to use of area should be anticipated.	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity or volume of COPIs; however, the CM would reduce the mobility of media by reducing exposure of the impacted materials to the environment.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$6,000	$11,000
Estimated Future Costs	$0	$0	$32,000	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on the availability of cap material. Future costs account for semi annual inspection and reporting with an annual replacement/repair assumption equal to 5% of the area.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets threshold criteria when used in conjunction with WPC;	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Does not reduce the toxicity or volume of impacted materials; General operation results in excessive damage to CM.	Not practical to remove the potential source (i.e. Slag Material).
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation in combination with WPC; however the CM is **not recommended** for this area.	Retained for further evaluation; the CM is **not recommended** for this area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 109	Corrective Measure Options	
	CM1	**CM2**
Target Area 3	**No Further Action**	**Work Place Controls, Surface**
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0 under general operating conditions.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe and Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 109 Target Area 3	Corrective Measure Options CM1 No Further Action	 CM2 Work Place Controls, Surface
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective. The CM would not reduce the calculated risk to below acceptable levels.	The CM will aid to reduce the Target Area calculated risk by reducing the exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation.
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	None of the samples collected in TA No. 3 were assigned to AOC 109; however, the CM is retained for further evaluation as a matter of consistency for the TA. **Recommended.**

AOC 113 Target Area 3	Corrective Measure Options			
	CM1 No Further Action	CM2 Work Place Controls, Surface	CM3 Surface Excavation	CM4 Debris Removal
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).	Soil excavation is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities.	CM includes the removal, transportation and disposal of accumulated debris from the surface of the area of concern. The debris will be transferred to a permitted off-site treatment and/or disposal facility. The excavated area will be restored with a 1-foot thick layer of backfill.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to soils.	Yes, the CM meets this criteria	Yes, the CM meets this criteria for potential exposure but would require WPC for construction activity.
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM removes the source material thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.	The CM will aid in the reduction of the complete exposure pathway thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs (i.e. Fe and Mn) contributing to the Target Area Risk Based Factors.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.	The CM has the potential to eliminate the source.	Slag aggregate may contain residual levels of various metals from the steel production process. The metals in the slag are immobile as demonstrated by TCLP analysis. CM will control exposure to and migration of the source materials.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.	Offsite disposal at an approved landfill would comply with waste management standards.

AOC 113	Corrective Measure Options			
	CM1	CM2	CM3	CM4
Target Area 3	**No Further Action**	**Work Place Controls, Surface**	**Surface Excavation**	**Debris Removal**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, CM would not reduce the HI to below 1.0	The CM will effectively reduce the calculated risk due to exposure to surface soils.	The CM effectively reduces the exposure risk by removing the source	The CM may reduce the calculated risk by removing accumulated debris from surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation	Removal of the source is reliable with no risk of failure.	Reliability of the CM limited to maintaining area free of accumulation.
Projected Useful Life of the Alternative	None	Indefinite	Indefinite	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.	The CM would not reduce the toxicity, mobility or volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.	Requires engineering and planning considerations; no offsite treatment or disposal required; no permits or approvals required; no specialized technology requirements.
Cost				
Cost of Implementation	$0	$0	$302,000	$150,000
Estimated Future Costs	$0	$0	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees; and the availability of backfill materials.	Cost may vary substantially based on the accuracy of estimated material quantities and required disposal options. Future costs were not evaluated for this area..
Key Advantages				
	There are no costs associated with the CM	Meets threshold criteria Ease of implementation; Lower cost	Meets the threshold criteria; Removes the source from the Site	Meets threshold criteria when used in conjunction with WPC; Removes material encroaching the EBNC.
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program	Not practical to remove the potential source (i.e. Slag Material).	Not practical to remove the potential source (i.e. Slag Material).
Status				
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; **recommended.**	Retained for further evaluation; the CM is **not recommended** for this area.	Retained for further evaluation; the CM is **recommended** to be used in combination with WPC.

AOC 115 Target Area 6	Corrective Measure Options	
	CM1	CM2
	No Further Action	Work Place Controls, Surface
Description	A no further action approach will maintain the SWMU or AOC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	The CM will be utilized to control potentially complete exposure pathways from surface soils to industrial and construction workers as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will modify their existing Safety Management System (SMS) documents and site permit requirements to include work practices and procedures to mitigate the risk to industrial workers and construction workers due to the exposure to surface soils. Employees are currently educated about the hazards associated with raw materials and final products at the Site, which are similar to the potential hazards associated with impacted surface soils. The education program will be expanded to include information on the areas of the Site that have an unacceptable calculated risk due to elevated levels of COPIs; including, the importance of personal hygiene including washing hands prior to eating, drinking, or smoking and, wearing appropriate personal protective equipment (PPE).
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM does not meet this criteria	Yes, the CM meets this criteria for potential exposure to surface soils.
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Target Area non-carcinogenic HI below 1.0.	The CM eliminates the potentially complete exposure pathways thereby aiding to reduce the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.	None of the samples assigned to this SWMU exceeded the screening level; therefore source control for this area is not applicable.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

AOC 115 **Target Area 6**	Corrective Measure Options	
	CM1	**CM2**
	No Further Action	**Work Place Controls, Surface**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM will aid to reduce the Target Area calculated risk by reducing the exposure to surface soils.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would not reduce the toxicity, mobility or volume of potential COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term risks are reduced as procedures are implemented with no potential threats associated with the short term implementation.
Implementability	Criterion is not applicable because there would be no implementation.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.
Cost		
Cost of Implementation	$0	$0
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Minimal non-quantifiable administrative fee associated with program revision and implementation.
Key Advantages		
	There are no costs associated with the CM	Meets threshold criteria; Ease of implementation.
Key Disadvantages		
	Baseline risks to human health and environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Does not alter the mobility, toxicity, or volume of impacted material; Long term responsibility for administering program
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; The CM is **recommended** as a general precaution applicable to the Target Area.

Table 3
(Former CMP Table 12)
Corrective Measure Options Overview

EBNC Overbank Sediments and Outfalls	Corrective Measure Options	
	CM1	**CM2**
	No Further Action	**Excavation**
Description	A no further action approach will maintain the EBNC in its current state without implementing methods to control exposures. This option would be utilized for SWMUs or AOCs where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply to SWMUs and AOCs where the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above surface or subsurface soils screening levels.	Excavation of soils and sediments is an absolute corrective measure, where contaminated material is excavated and transported to permitted off-site treatment and/or disposal facilities. The excavation of sediments would include the first 500 feet behind the dam on the EBNC. Visual observation of the sediments being dredged will be used to determine when the removal activities have reached the natural stream bed. In addition to the in-stream sediment removal activities, a targeted hot spot excavation around sample location OB-7 would be conducted. The proposed surface excavation is estimated to measure approximately 10 feet by 10 feet by 1 foot deep to address PAH-impacted overbank sediment deposits. Additionally, the orange staining near Outfall 011 will also be removed to the visible limits of staining.
Threshold Criteria		
Protection of Human Health and the Environment	No, the CM meets the human health criterion but does not meet this ecological criterion.	Yes, the CM meets this criteria
Attainment of Media Cleanup Objectives:		
Carcinogenic Risk below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$	Criterion is not applicable because the Target Area calculated risk was below $1x10^{-4}$
Non-Carcinogenic Health Index (HI) below 1.0	Criterion is not applicable because the Target Area non-carcinogenic HI below 1.0.	Criterion is not applicable because the Target Area non-carcinogenic HI below 1.0.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Target Area blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs contributing to the Ecological Risk Based Factors.	The CM has the potential to eliminate the source.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Offsite disposal at an approved landfill would comply with waste management standards.

EBNC Overbank Sediments and Outfalls	Corrective Measure Options	
	CM1	**CM2**
	No Further Action	**Excavation**
Balancing Criteria		
Long Term Reliability and Effectiveness		
Effectiveness of the Alternative	Ineffective, The CM would not reduce the ecological calculated hazard quotient to below acceptable levels.	The CM effectively reduces the exposure risk by removing the source
Reliability and Risk of Failure	Ineffective and unreliable	Removal of the source is reliable with no risk of failure.
Projected Useful Life of the Alternative	None	Indefinite
Reduction in Toxicity, Mobility, and Volume of Waste	The CM would not reduce the toxicity, mobility or volume of potential COPIs.	The CM would remove the source from the Site thereby reduce the toxicity, mobility and volume of the COPIs.
Short Term Effectiveness	Ineffective, there is no difference in the effectiveness of The CM over short and long term.	Short term effectiveness would present potential exposure to construction workers. The risk to construction workers can be reduced through the development and implementation of an appropriate Health & Safety Plan.
Implementability	Criterion is not applicable because there would be no implementation.	Requires engineering and planning considerations; requires offsite treatment or disposal; requires permits or approvals; no specialized technology requirements.
Cost		
Cost of Implementation	$0	$372,000
Estimated Future Costs	$0	$0
Certainty of Future Costs	There are no costs associated with the CM	Cost may vary substantially based on type of and distance to an appropriate offsite treatment and/or disposal facility; disposal fees.
Key Advantages		
	There are no costs associated with the CM	Meets the threshold criteria; Removes the source from the Site
Key Disadvantages		
	Baseline risks to the environment is not acceptable; No change in toxicity, mobility, volume of impacted material.	Costly; Sediments can accumulate behind the dam over time.
Status		
	Dismissed, does not satisfy threshold criteria.	Retained for further evaluation; the CM is **recommended** for this area.

Groundwater	Corrective Measure Options			
	CM1	CM2	CM3	CM4
	No Further Action	Monitoring Natural Attenuation	Workplace and Institutional Controls	Confirmatory Sampling
Description	A no further action approach will maintain the Site in its current state without implementing methods to control exposures. This option would be utilized for areas where it has been demonstrated that protection of human health and the environment is attained without further action. This would apply when the source of release is controlled or eliminated, the calculated risk is below the threshold criteria, and/or there were no COPI detected above screening levels.	Monitored natural attenuation (MNA) is a technique used to monitor or test the progress of natural attenuation processes that can degrade contaminants in soil and groundwater. It may be used with other remediation processes as a finishing option or as the only remediation process if the rate of contaminant degradation is fast enough to protect human health and the environment. MNA will also ensure that groundwater with a calculated risk above acceptable levels is not migrating offsite.	Workplace controls (WPC) will be utilized to control potentially complete exposure pathways from groundwater to potential receptors as necessary to facilitate reducing the calculated risk to an acceptable level under the assumptions used for the risk assessment portion of the RFI. Republic will implement institutional controls such as property use restrictions thereby eliminating non-industrial exposure scenarios, as well as, groundwater use restrictions thereby eliminating potential ingestion and direct contact exposure pathways to industrial workers. An environmental covenant will be filed with Stark County Recorder's Office to document site activities and property restrictions.	Confirmatory sampling proposed as part of this CMP is intended to verify that the previous conclusions (i.e. sitewide groundwater is not impacting offsite groundwater, surface water or sediments) remain valid following implementation of the onsite corrective measures through additional groundwater sampling at select locations over a period of up to 5 years.
Threshold Criteria				
Protection of Human Health and the Environment	No, the CM does not meet this criteria	The CM meets this criteria for potential exposure to Site groundwater when combined with CM3 - Workplace and Institutional Controls	The CM meets this criteria for potential exposure to Site groundwater	The CM meets this criteria for potential exposure to Site groundwater when combined with CM3 - Workplace and Institutional Controls
Attainment of Media Cleanup Objectives:				
Carcinogenic Risk below $1x10^{-4}$	The CM does not aid in reducing the calculated Sitewide Groundwater Lifetime Incremental Cancer Risk (LICR) below 1x10-4	The CM does not aid in reducing the calculated LICR for groundwater below $1x10^{-4}$ initially.	The CM is intended to eliminate the potential complete exposure pathway thereby aiding to reduce the LICR under 1x10-4 for general operating conditions.	The CM is intended to verify that the previous conclusions (i.e. sitewide groundwater is not causing offsite groundwater, surface water or sediments to have a calculated LICR in excess of 1x10-4) remain valid following implementation of the onsite corrective measures.
Non-Carcinogenic Health Index (HI) below 1.0	The CM does not aid in reducing the Sitewide Groundwater non-carcinogenic HI below 1.0.	The CM does not aid in reducing the Sitewide Groundwater non-carcinogenic HI below 1.0.	The CM is intended to eliminate the potential complete exposure pathway thereby aiding to reduce the Sitewide Groundwater non-carcinogenic HI below 1.0 under general operating conditions.	The CM is intended to verify that the previous conclusions (i.e. sitewide groundwater is not causing offsite groundwater, surface water or sediments to have a calculated non-carcinogenic HI below 1.0) remain valid following implementation of the onsite corrective measures.
Blood Lead Level below 10 µg/dL	Criterion is not applicable because the calculated Sitewide Groundwater blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Sitewide Groundwater blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Sitewide Groundwater blood lead level was below 10 µg/dL.	Criterion is not applicable because the calculated Sitewide Groundwater blood lead level was below 10 µg/dL.
Source Control	The CM would not control the source of COPIs contributing to the Sitewide Groundwater Risk Based Factors.	The CM would not control the source of COPIs contributing to the Sitewide Groundwater Risk Based Factors. The CM would rely on natural processes to eliminate the source over time	The CM would not control the source of COPIs contributing to the Sitewide Groundwater Risk Based Factors.	The CM would not control the source of COPIs contributing to the Sitewide Groundwater Risk Based Factors.
Compliance with Waste Management Standards	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.	Criterion is not applicable because the CM would not involve removal of contaminated media.

Groundwater	Corrective Measure Options			
	CM1	**CM2**	**CM3**	**CM4**
	No Further Action	**Monitoring Natural Attenuation**	**Workplace and Institutional Controls**	**Confirmatory Sampling**
Balancing Criteria				
Long Term Reliability and Effectiveness				
Effectiveness of the Alternative	Ineffective, The CM would not reduce the calculated risk to below acceptable levels.	The CM has the ability to meet the threshold criteria over time through natural attenuation of the source.	The CM will effectively reduce the calculated risk, except for the construction worker risk scenario.	The CM will provide information to effectively confirm that offsite groundwater, surface water, and sediment does not pose a potentially unacceptable calculated risks to human health or ecological receptors following implementation of the onsite corrective measures.
Reliability and Risk of Failure	Ineffective and unreliable	Reliable with proper implementation; risk of failure associated with improper implementation and lack of reductive natural conditions.	Reliability of CM limited to implementation and enforcement of controls.	Reliable as this CM allows direct measurement of groundwater quality at the property boundary and the selected monitoring well network.
Projected Useful Life of the Alternative	Indefinite	Indefinite	Indefinite	Indefinite
Reduction in toxicity, mobility, and volume of waste	The CM is not proactive towards the reduction of toxicity, mobility or volume of the COPIs.	The CM is not proactive towards the reduction of toxicity, mobility or volume of the COPIs.	The CM is not proactive towards the reduction of toxicity, mobility or volume of the COPIs.	The CM is not proactive towards the reduction of toxicity, mobility or volume of the COPIs.
Short term effectiveness	Ineffective, there is no difference in the effectiveness of the CM over short and long term.	Ineffective as a short term treatment option.	Effective as a short term method for exposure control.	Effective as a short term method for calculating potential exposure.
Implementability	Criterion is not applicable because there would be no implementation.	Implementation would involve designing and implementing a monitoring plan.	Requires minor alterations to plans and procedures already in use. Minimal time to implement and achieve beneficial response. Requires no permits or offsite approvals.	Implementation would involve designing and implementing a monitoring plan.
Cost				
Cost of Implementation	$0	$10,000	$10,000	$10,000
Estimated Future Costs	$0	$2,200,000	$0	$142,000
Certainty of Future Costs	There are no costs associated with the CM	Costs may vary depending on the number and type of parameters analyzed as well as the required frequency of sampling and reporting.	Minimal non-quantifiable administrative fee associated with program revision and implementation. Minor costs associated with establishing and memorializing the institutional controls.	Costs may vary depending on the results of the monitoring, number and type of parameters analyzed, and required frequency of sampling and reporting.
Key Advantages				
	There are no costs associated with the CM	Ease of implementation; Ability to meet threshold criteria over time.	Meets the threshold requirements with the exception of source control; Effective in the near-term; Minimal fee to implement;	Ease of implementation; Ability to verify that offsite groundwater, surface water, and sediment continue to meet threshold criteria following implementation of the onsite corrective measures.
Key Disadvantages				
	Baseline risks to human health and environment is not acceptable; No proactive change in toxicity, mobility, volume of impacted material.	Not able to meet the threshold requirements in the near-term; Ineffective in the near-term; Larger future monetary requirements; Not proactive in reducing the toxicity, mobility, or volume of source.	Not proactive in reducing the toxicity, mobility, or volume of source.	Not proactive in reducing the toxicity, mobility, or volume of source.
Status				
	Dismissed, does not satisfy threshold criteria.	**Dismissed**, there is no need to perform MNA because sitewide groundwater is not causing offsite groundwater, surface water, and sediment to exceed the threshold criteria.	Retained for further evaluation; the CM is **recommended** for groundwater to be used in conjunction with CM4.	Retained for further evaluation; the CM is **recommended** for groundwater to be used in conjunction with CM3.